

## SQUENCE LISTING

## #// RECEIVED

JUN 5 1 79.15

TECH CENTER 1600 2900

```
+:1200 PEOTEINS PRODUCING AN ALTERED IMMUNOGENIC RESPONSE AND METHODS OF MAKING AND USING THE SAME
+:1300 A-088893/DJB*DAV
+:1400 09 500,135
+:1410 2000-02-08
```

-:160 - 1736

+150 + 091060,872
+151 + 1998-04-15

41 % Patentin Ver. 2.1

H210 + 1 H211 + 14 +5 H212 + DNA

Hold - Badillus amyloliquefaciens

Hill: mat\_peptide
Hill: (417)..(1495)

-0.00 b

Fililia CDA

HODDY (981..(1344)

+1.11(0) +

\*2223 The nnn at positions 532 through 584 which in a preferred embodiment (aat) is to code for asparagine, but which may also code for proline.

\*1<u>-</u>1100

+001 + misc\_feature +000 > (585)..(587)

Fig. 2. The nnn at positions 585 through 587 which in a preferred embodiment (cct) is to code for proline, but which may also code for asparagine.

 $\pm 220.8$ 

HU010 misd\_feature HU005 (597)..(599)

32.2.3. The nnn at positions 597 to 599 which in a preferred embodiment (aad) is to code for asparagine, but which may also code for aspartic acid.

+12121(1)+

+00210 misc\_feature +00220 (678)..(680)

-:223> The nnn at positions 678 through 680 which in a preferred empodiment (gda) is to code for alanine, but which may also code for serine. +1.1200  $\rightarrow$ Hall - misc feature -0002 · (681) .. (683)  $\pm 2.2.3 \cdot$  The nnn at positions 681 through 683 which in a preferred embodiment (toa) is to code for serine, but which may also code for alanine. <22.20 · <d31 - misc feature</pre> <222 - (703)..(710)</p> <223 The nnn at positions 703 through 710 which in a preferred embadiment (got) is to dode for alanine, but which may also code for aspartic acid. <2220 -<2221 - misc feature  $<222 \cdot (711) \dots (713)$  $<22.23 \cdot$  The nnn at positions 711 through 713 which in a preferred embodiment (gac) is to dade for aspartic acid, but which may also code for alanine. <220 -<2211 misc feature <223  $\cdot$  The nnn at positions 888 through 890 which in a preferred embediment (act) is to code for threonine, but which may also code for serine. <.1.10 <2001 misc feature  $<0.002 \times (891) \dots (893)$ <33.3. The nnn at positions 891 through 893 which in a</p> preferred empodiment (tcc) is to code for serine, but which may also code for threonine. -1.11.1101-\*MAND misc feature  $\pm (2222 - (1167)...(1169)$ +2230 The nnn at resitions 1167 through 1169 which in a preferred embodiment (gaa) is to code for glutamic acid, but which may also code for glutamine. -400 > 1gg:ctactaa aatattatto catactatac aattaataca cagaataato tgtctattgg 60 ttattctgca aatgaaasaa aggagaggat aaaga atg aga ggc aaa aaa gta 113 Met Arg Gly Lys Lys Val -105tgg ate agt ttg etg ttt get tta geg tta ate ttt acg atg geg tte

-90

Trp Ile Ser Leu Leu Phe Ala Leu Ala Leu Ile Phe Thr Met Ala Phe

-95

-100

			tc: Ser													209
			gtc Val	, , ,						.,	_			_	_	257
	_		gat Asp -50	-			-							_		305
			gta Val	-	_			-				-		_	-	353
	_	_	aaa Lys		_	_	_	-	-		-	-	-	_		401
			gog Ala													449
			got Ala 15													4.97
			atc Ile													545
			gga Gly													593
			tot Ser													641
			atc Ile													689
			gtt Val 95													737
			atc Ile		_							•	_			785
			ggc Gly		$\mathtt{Pr} \leftarrow$											833
gat	aaa	gee	gtt	gca	tcc	ggc	gtc	gta	gtc	gtt	gcg	gca	gec	ggt	aac	881

	Asp 140	Lys	Ala	Val	Ala	Ser 145	Gly	Val	Val	Val	Val 150	Ala	Ala	Ala	Gly	Asn 155	
															ааа Буз 170		923
															aga Arg		9//
															ggc Gly		10.25
															aac Asn		1073
•															att Ile		1131
															tta Leu 250		1169
															ggg Gly		1.017
	ato aac gta cag gog goa got cag taa aacataaaaa accggoottg Tie Asn Val Gln Ala Ala Ala Gln 270 275												1264				
	gado	egge	cąg t	tttt	ittat	t tt	tctt	cata	c ege	datqt	tca	atco	gata	cca t	taato	gacgg	1324
	atgg	jatao	eat o	ctgaa	aatt	t ta	ıacga	igaaa	a egg	icāāē	gttg	acco	ggct	ca (	gtaca	gtaac	1384
ggosaagtoo tgaaabgtot baatogoogo ttoobggttt boggtbagot baatgoogta													1444				
Adagtoggog gogttstoot gatacoggga gadggcatto gtaatoggat o													1495				
<pre>HQ10&gt; 2 HQ11&gt; 38: HQ12&gt; PRT HQ13&gt; Bacillus amyloliquefaciens</pre>																	
+020> +020> VARIANT +0000> (163)(163) +0203+ Maa = Asn or Pro																	
		· VA	AEIAN		க். <b>1</b> \												

 $0.02222 \times (164) \dots (164)$ 

```
-1223 Maa = Pro or Asn
. ( ) ( ) ( )
HIGHT - VARIANT
<2.1.1 (167) ... (167)
+12234 ·
- Combandaria - MARIANT
W2.11 - 195)...(195)
H203 - Maa = Ala or Ser
-1.1. () -
HILL VAFIANT
+0.5... (196)...(196)
4133334
HILL I - VAFIANT
4.1.77 + (205) \dots (205)
Milition Maa = Ala or Asp
412.200
THATEAN - ILLE
+3.0. + (206)...(206)
Hala = Asp or Ala
3220 ×
HILL VARIANT
<222> /265)...(265)
Hudir - Maa = Thr or Ser
<1220 ×
HODEN VARIANT
H222 (266) ... (266)
HUNER Maa = Ser or Thr
417.1008
HIDDI - VARIANT
HONDA (358)...(358)
+:Mist - Maa = Gln or Glu
-14000 - 1
M-t Ard Gly Lys Lys Val Trp Ile Ser Leu Leu Phe Ala Leu Ala Leu
                                      10
The The Thr Met Ala Phe Gly Ser Thr Ser Ser Ala Gln Ala Ala Gly
             20
                                  25
Lys Ser Asn Gly Glu Lys Lys Tyr Ile Val Gly Phe Lys Gln Thr Met
        35
                             40
                                                  45
Ser Thr Met Ser Ala Ala Lys Lys Lys Asp Val Ile Ser Glu Lys Gly
                         55
Gly Lys Val Gln Lys Gln Phe Lys Tyr Val Asp Ala Ala Ser Ala Thr
                     70
                                          75
15.53
                                                               80
Leu Asn Glu Lys Ala Val Lys Glu Leu Lys Lys Asp Pro Ser Val Ala
                 85
                                      30
Tyr Val Glu Glu Asp His Val Ala His Ala Tyr Ala Gln Ser Val Pro
```

Tyr	Зlу	Val [15	Ser	Gln	Ile	Lys	Ala 120	Pro	Ala	Leu	His	3er 125	Gln	Gly	Tyr
Tnr	31 y 13:)	Ser	Asn	Val	Lys	Val 135	Ala	Val	Ile	Asp	Ser 140	GLY	I 1.3	Asp	Ser
Ser 145	His	Pro	Asp	Leu	Lys 150	Val	Ala	Gly	Gly	Ala 155	Ser	Met	Val	Pro	Ser 150
Glu	Thr	Жаа	Хза	Pn∈ 165	Gln	Asp	Каа	Asn	3er 170	His	Gly	Thr	His	Val 175	Ala
Gly	Thr	Val	Ala 180	Ala	Leu	Asrı	Asn	Ser 135	Ile	Gly	Val	Leu	G17 194	Val	ЕÍА
Pro	Ser	Жаз 195	Хаа	F-37	Tyr	Ala	Val 200	Lys	Val	Leu	GLY	Жаа 205	Kaa	Gly	Ser
зіу	31n 310	Tyr	Ser	Trr	Lle	Ile 215	Asn	Gly	Ilе	Glu	Trp 220	Ala	Ile	Ala	Asn
Asn 225	Met	Asp	Val	Lle	Asn 250	Met	Ser	L∙∋u	Gly	Gly 235	Pro	Ser	Gly	Ser	Ala 240
Ala	Leu	Lys	Ala	Ala 245	Val	Asp	Lys	Alä	Val 250	Ala	Ser	Gly	Va.l.	Val 255	Val
Vál	Ala	Ala	Ala 260	ЗLУ	Asn	Glu	Gly	Xaa 265	Каа	Gly	Ser	Ser	Ser 270	Thr	Val
Пу	Туг	Pro 275	Gly	Lys	Tyr	Pro	Ser 180	Val	Ile	Ala	Val	Gly 235	Ala	Val.	A.s.p
Ser	Ser 290	Asr.	Glm	Arq	Ala	Ser 295	Phe	Ser	Ser	Val	Gly 300	Frc	Glu	Leu	Asp
Val 305	Met	Ala	Pro	GIŞ	Val 310	Ser	Ile	Glrı	Ser	Thr 3:5	Leu	Pro	Gly	Asn	Lys 320
Tyr	G17	Ala	Tyr	Asn 325	Gly	Thr	Ser	Met	Ala 330	Ser	Pro	His	Val	Ala 335	GLy
Ala	Ala	Ala	Ъец 340	He	Le·u	Ser	Lys	His 345	Pro	Asn	Trp	Thr	Asn 350	Thr	Gln
Val	Arg	Ser 355	Ser	Leu	Хаа	Asr	Thr 360	Thr	Thr	Lys	Leu	Gly 365	Asr	Ser	Phe
Tyr	Tyr 370	Gly	Lys	Gly	Leu	Ile 375	Asn	Val	Gln	Ala	Ala 350	Ala	Gln		

-210 - 3 ...11 - ...75

HILLIZ FRT

\*213 · Bacillus amyloliquefaciens

5400 5

Ala Gln Ser Val Pro Tyr Gly Val Ser Gln Ile Lys Ala Pro Ala Leu

His Ser Gln Gly Tyr Thr Gly Ser Asr. Val Lys Val Ala Val Ile Asp

Ser Gly Ile Asp Ser Ser His Pro Asr Leu Lys Val Ala Gly Gly Ala 35

Ser Met Val Pro Ser Glu Thr Asn Pro Phe Gln Asp Asn Asn Ser His 55

Gly Thr His Val Ala Gly Thr Val Ala Ala Leu Asn Asn Ser Ile Gly 75

Val Leu Gly Val Ala Pro Ser Ala Ser Leu Tyr Ala Val Lys Val Leu Gly Ala Asp Gly Ser Gly Gln Tyr Ser Trp Ile Ile Asn Gly Ile Glu 190 105 Trp Ala Ile Ala Asn Asn Met Asp Val Ile Asn Met Ser Leu Gly Gly Pro Ser Gly Ser Ala Ala Leu Lys Ala Ala Val Asp Lys Ala Val Ala 135 Ser Gly Val Val Val Val Ala Ala Ala Gly Asn Glu Gly Thr Ser Gly Ser Ser Ser Thr Val Gly Tyr Pro Gly Lys Tyr Pro Ser Val Ile Ala 165 170 Val Gly Ala Val Asp Ser Ser Asn Glr. Arg Ala Ser Phe Ser Ser Val 130 135 Gly Pro Glu Leu Asp Val Met Ala Pro Gly Val Ser Ile Gln Ser Thr 200 Leu Pro Gly Asn Lys Tyr Gly Ala Tyr Asn Gly Thr Ser Met Ala Ser 215 Pro His Val Ala Gly Ala Ala Ala Leu Ile Leu Ser Lys His Pro Asn Trp Thr Asn Thr Gln Val Arg Ser Ser Leu Glu Asn Thr Thr Thr Lys 245 250 Leu Gly Asp Ser Phe Tyr Tyr Gly Lys Gly Leu Ile Asn Val Gln Ala 265 Ala Ala Gln 275

·..10 · 4

<211 · 275

•212 • PRT

<!li>:113 · Bacillus subtilis

< 100 - 4

Ala Gln Ser Val Pro Tyr Gly Ile Ser Gln Ile Lys Ala Pro Ala Leu 1 5 10 15

His Jer Gln Gly Tyr Thr Gly Ser Asn Val Lys Val Ala Val Ile Asp 20 25 30

Ser Gly Ile Asp Ser Ser His Pro Asp Leu Asn Val Arg Gly Gly Ala 35 40 45

Ser Phe Val Pro Ser Glu Thr Asn Pro Tyr Gln Asp Gly Ser Ser His

50 55 60

Gly Thr His Val Ala Gly Thr He Ala Ala Leu Asn Asn Ser He Gly Val Leu Gly Val Ser Pro Ser Ala Ser Leu Tyr Ala Val Lys Val Leu 90 Asp Ser Thr Gly Ser Gly Gln Tyr Ser Trp Ile Ile Asn Gly Ile Glu Trp Ala Ile Ser Asn Asn Met Asp Val Ile Asn Met Ser Leu Gly Gly 120 115Pro Thr Gly Ser Thr Ala Leu Lys Thr Val Val Asp Lys Ala Val Ser 135 Ser Gly Ile Val Val Ala Ala Ala Gly Asn Glu Gly Ser Ser Gly Ser Thr Ser Thr Val Gly Tyr Pro Ala Lys Tyr Pro Ser Thr Ile Ala 170 Val Gly Ala Val Ash Ser Ser Ash Gln Arg Ala Ser Phe Ser Ser Ala 180 185 190 Bly Ser Glu Leu Asp Val Met Ala Pro Gly Val Ser Ile Gln Ser Thr 2(10) Lou Pro Gly Gly Thr Tyr Gly Ala Tyr Ash Gly Thr Ser Met Ala Thr 215 Pro His Val Ala Gly Ala Ala Ala Leu Ile Leu Ser Lys His Pro Thr Trp Thr Asn Ala Gln Val Arg Asp Arg Leu Glu Ser Thr Ala Thr Tyr 250 245

Lou Gly Asr. Ser Phe Tyr Tyr Gly Lys Gly Leu Ile Asn Val Gln Ala 260 265 270

Ala Ala Gln 275

+:::10 → 5

-1113-274

HILLIA PRT

+::13> Bacillus licheniformis

1400: 5

Ala Gln Thr Val Pro Tyr Gly Ile Pro Leu Ile Lys Ala Asp Lys Val

Gln Ala Gln Gly Phe Lys Gly Ala Asr. Val Lys Val Ala Val Leu Asp 20 25 30

Thr	Gly	Ile 35	Gln	Ala	Ser	His	Pro 40	Asp	Leu	Asn	Val	Val 45	Glγ	З1у	Ala
Ser	Pho Su	Val	Ala	Gly	Glu	Ala 55	Tyr	Asrı	Thr	Asp	Gly 60	Азп	Gly	His	Gly
Thr 65	His	Val	Ala	Gly	Thr 70	Val	Ala	Alā	Leu	Asp 75	Asn	Thr	Thr	Gly	Val. 80
Leu	-31 y	Val	Ala	Pro 85	Ser	Val	Ser	Leu	Tyr 90	Alā	Val	Lys	Val	Leu 95	Astı
Ser	3er	Gly	Ser 100	Gly	Ser	Tyr	Ser	Gly 105	Ile	Val	3er	Gly	110	Blu	Trp
Ala	Thi	Thr 115	Asn	Gly	Met	qaA	Val 120	Ile	Asn	Met	Ser	Leu 1.35	Gly	Gly	Ala
Ser	G17 130	Ser	Thr	Ala	Met	Lys 135	Gln	Ala	Val	Asp	Asn 140	Ala	Tyr	Ala	Arg
Gly 145	Vāl	Val	Val	Val	Ala 150	Ala	Ala	Gly	Asn	Ser 155	Gly	Asn	Ser	Gly	3er 160
Thr	Asn	Thr	Ile	Gly 165	Tyr	Pro	Ala	Lys	Tyr 170	Asp	Ser	Val	Ile	Ala 175	Val
ЗГА	Ala	Val	Asp 180	3er	Asn	Ser	Asn	Arg 185	Ala	Ser	Phe	Ser	<i>S</i> er 190	Val	Gly
Ala	Glu	Leu 195	Glu	Val	Met	Ala	Pro 200	Gly	Ala	Gly	Val	Tyr 205	3er	Thr	Туг
Sro	Thr 210	Asn	Thr	Tyr	Ala	Thr 215	Leu	Asn	Gly	Thr	Ser 220	Met	Ala	Ser	Pro
His 225	Va⊥	Ala	Gly	Ala	Ala 230	Ala	Leu	Ile	Leu	Ser 235	Lys	His	Pro	Asn	Leu 240
Ser	Ala	Ser	Gln	Val 245	Arg	Asn	Arg	Leu	Ser 250	Ser	Thr	Ala	Thr	Tyr 255	Leu

Gly Ser Ser Phe Tyr Tyr Gly Lys Gly Leu Ile Asn Val Glu Ala Ala 260 -265 -270

Ala Glr.

<sup>±0.100 6</sup> 

<sup>·:: 11:- 269</sup> 

<sup>·</sup>M120 PRT

<sup>+:213:</sup> Pacillus lentus

<sup>-:400≥ €</sup> 

Ala Gln Ser Val Prc Trp Gly Ile Ser Arg Val Gln Ala Prc Ala Ala 1 5 10 15

His Asn Arg Gly Leu Thr Gly Ser Gly Val Lys Val Ala Val Leu Asp Thr Gly Ile Ser Thr His Pro Asp Leu Ash Ile Arg Gly Gly Ala Ser 40 Phe Val Pro Gly Glu Pro Ser Thr Gln Asp Gly Asn Gly His Gly Thr His Val Ala Bly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly Val Leu 70 Gly Val Ala Pro Ser Ala Glu Leu Tyr Ala Val Lys Val Leu Gly Ala Ser Gly Ser Gly Ser Val Ser Ser Ile Ala Gln Gly Leu Glu Trp Ala 105 Gly Ash Ash Gly Met His Val Ala Ash Leu Ser Leu Gly Ser Pro Ser 115 120 Pro Ser Ala Thr Leu Glu Gln Ala Val Asn Ser Ala Thr Ser Arg Gly 135 Val Let Val Val Ala Ala Ser Gly Asn Ser Gly Ala Gly Ser Ile Ser 155 150 Tyr Pro Ala Ary Tyr Ala Asn Ala Met Ala Val Gly Ala Thr Asp Gln Asn Asr. Asn Ary Ala Ser Phe Ser Gln Tyr Gly Ala Gly Leu Asp Ile 155 Val Ala Pro Gly Val Asn Val Gln Ser Thr Tyr Pro Gly Ser Thr Tyr 195 200 Ala Ser Leu Ash Gly Thr Ser Met Ala Thr Pro His Val Ala Gly Ala 215 Ala Ala Leu Val Lys Gln Lys Asn Pro Ser Trp Ser Asn Val Gln Ile 230 235 240 Arg Ast. His Let Lys Ash Thr Ala Thr Ser Leu Gly Ser Thr Ash Leu 245 250

·:::10:- ''

+211:- 15

·:::12: FRT

+00130 Artificial Sequence

·:::20:-

<2230 Lescription of Artificial Sequence: Synthetic

Tyr Gly Ser Gly Leu Val Asn Ala Glu Ala Ala Thr Arg 265

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+(400 + 7)
Ile Lys Asp Phe His Val Tyr Phe Arg Glu Ser Arg Asp Ala Gly
                  5
                                     10
₹210 € 8
<.111 + 15
<212 · PET
<213 - Artificial Sequence
<2220 ·
<2223 Description of Artificial Sequence: Synthetic</p>
< 400 + 8
Leu Glu Gln Ala Val Asn Ser Ala Thr Ser Arg Gly Val Leu Val
 1 5
<210> 9
<2115 15
H212> FET
<213> Artificial Sequence
<0.000

#223 Pescription of Artificial Sequence: Synthetic
<400.49
Ala Glm Ser Val Pro Trp Gly Ile Ser Arg Val Glm Ala Pro Ala
<210> 10
<22112 15
<212> PFT
<213> Artificial Sequence
*12.000x
<2235 Description of Artificial Sequence: Synthetic</pre>
\pm 3000 \cdot 10
Val Pro Trp Gly Ile Ser Arg Val Gln Ala Pro Ala Ala His Asn
-:210:- 11
<2110 15
HOIDS PFT
+213 Artificial Sequence
-12200
HELEN Description of Artificial Sequence: Synthetic
Gly Ile Ser Arg Val Gln Ala Pro Ala Ala His Asn Arg Gly Leu
1 5
                                     10
```

```
\pm 210 + 12
-1.111 - 15
40.12 \cdot \text{PRT}
+0.13 · Artificial Sequence
Hulls Description of Artificial Sequence: Synthetic
34.00 + 1.5
Ary Val Gln Ala Pro Ala Ala His Asn Arg Gly Leu Thr Gly Ser
                           10
\pm 0.10 \pm 13
\pm 0.011 \pm 15
·IIII · PET
+213 - Artificial Sequence
41.130 -
+2227 Description of Artificial Sequence: Synthetic
34009-13
Ala Pro Ala Ala His Asn Arg Gly Leu Thr Gly Ser Gly Val Lys
40.10 \pm 14
<211 - 15
KAND - PFT
<::13> Artificial Sequence
-0.202
HIBB: Description of Artificial Sequence: Synthetic
3400% 14
Ala His Asn Arg Gly Leu Thr Gly Ser Gly Val Lys Val Ala Val
                                         10
-07105 15
· . 11 · 15
...1. FFT
+213 Artificial Sequence
-1000m
<223> Description of Artificial Sequence: Synthetic
<4000 15
Arg Gly Leu Thr Gly Ser Gly Val Lys Val Ala Val Leu Asp Thr
:0100 16
11115
\cdot \text{``...} 1 \text{``...} \text{``...} \text{PFT}
+213 Artificial Sequence
```

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<2331>
this Description of Artificial Sequence: Synthetic
1:00 16
The Gly Ser Gly Val Lys Val Ala Val Leu Asp Thr Gly Ile Ser
                  Γ,
 1
                                       10
\pm 1.1170 \pm 1.7
\pm 0.111 \pm 15
HIND - PRT
HAMILY Artificial Sequence
HAMA'S Description of Artificial Sequence: Synthetic
-1400 - 17
Gly Vai Lys Val Ala Val Leu Asp Thr Gly Ile Ser Thr His Pro
                              10
\pm 0.10 \pm 18
4011 - 15
HOID - PET
4213 Artificial Sequence
H. D. Lescription of Artificial Sequence: Synthetic
+(400) + 16
Val Ala Val Leu Asp Thr Gly Ile Ser Thr His Pro Asp Leu Asn
\pm 0.000 \pm 19
<:211 < 15</pre>
FRT :
+213 - Artificial Sequence
-1. . U -
HILLS - Description of Artificial Sequence: Synthetic
H400.-19
Leu Asp Thr Gly Ile Ser Thr His Pro Asp Leu Asn Ile Arg Gly
                                                              15
                                       10
-17160-20
41.1114-15
·LIII FFT
HALLER Artificial Sequence
+1.1111(11) +
HARRY Description of Artificial Sequence: Synthetic
-14001-20
```

Gly Ilo Ser Thr His Pro Asp Leu Asn Ile Arg Gly Gly Ala Ser -:2105 . 1 H211 - 15 SULLE PRT HILL Artificial Sequence -12.10 <:203 - Description of Artificial Sequence: Synthetic</pre> 4400 - 11 Prin His Pro Asp Leu Asn lle Arg Gly Gly Ala Ser Phe Val Pro 40010 + 000  $\pm 1211 \pm 15$  $\pm 1.71.1 \pm \pm 1.7T$ Hills - Artificial Sequence 112.10 HARTY Description of Artificial Sequence: Synthetic Asy Leu Asn Ile Arg Gly Gly Ala Ser Phe Val Pro Gly Glu Pro 5 10  $47.10 \pm 23$  $\leq 211 \leq 15$ KILL - FFT <213 · Artificial Sequence</pre> 31.12 O 4 <223 Description of Artificial Sequence: Synthetic</p> The Arg Gly Gly Ala Ser Phe Val Pro Gly Glu Pro Ser Thr Gln 1 5 10 15 -1.1101-114 401111-15 · DIE FET 42.130 Artificial Sequence -0.130 Description of Artificial Sequence: Synthetic G.y Ala Ser Phe Val Pro Gly Glu Pro Ser Thr Gln Asp Gly Asn 5 10 15

K2102-25

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.:211 - 15
-1112 - PRT
1213 · Artificial Sequence
-11200
H223 - Description of Artificial Sequence: Synthetic
-1400 - 25
Phe Va! Pro Gly Glu Pro Ser Thr Gln Asp Gly Asn Gly His Gly
-0.010 - 0.5
<!211 + 15</pre>
40010 + \mathtt{PET}
-0115 Artificial Sequence
H220 H
+3.33 Description of Artificial Sequence: Synthetic
三4005 点位
Gly Glu Pro Ser Thr Gln Asp Gly Asn Gly His Gly Thr His Val
                   Ε,
                           10
H210 K 27
\pm 1211 + 15
HD1D> FRT
RILLS Artificial Sequence
×12200
<:2.03. Description of Artificial Sequence: Synthetic</pre>
K400% 27
Ser Thr Gln Asp Gl; Asn Gly His Gly Thr His Val Ala Gly Thr
                    5
+1210.+ 13
:0011x 15
\pm 1212 \times \mathrm{FFT}
+213 - Artificial Sequence
+122004
<!DUS: Description of Artificial Sequence: Synthetic</pre>
-(400)- 78
Asp Gly Asn Gly His Gly Thr His Val Ala Gly Thr Ile Ala Ala
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4101114 15
HIZIDH PRT
4213 Artificial Sequence
+121101×
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1223 · Description of Artificial Sequence: Synthetic
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Gly His Gly Thr His Val Ala Gly Thr Ile Ala Ala Leu Asn Asn
                 C,
                                     10
-:210,- 30
-111 15
FULLS PRT
+213 > Artificial Sequence
HARBY Description of Artificial Sequence: Synthetic
H14005 30
Thr His Val Ala Gly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly
 1
                                      10
4010 - 31
R211: 15
RITTE PRT
+1113 · Artificial Sequence
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Ala Gly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly
                  Ε,
                                      10
<210> 32
<211> 15
ROLLS PET
<213> Artificial Sequence
+223 - Description of Artificial Sequence: Synthetic
4400.4 32
Ilo Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly Val Ala Pro
                  5
H010H 33
<2110-15
HARRY FET
-1113 Artificial Sequence
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+14001-33
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<2105 34
+1.311 + 15
Hall PRT
+0.113 · Artificial Sequence
-1.139-
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                 5
                                      1.0
+210 + 35
·211 · 15
HULLI FRT
40013 · Artificial Sequence
-1000
HAMES - Description of Artificial Sequence: Synthetic
-1400 - 35
Mai Leu Gly Val Ala Pro Ser Ala Glu Leu Tyr Ala Val Lys Val
                  5
4010 + 36
4311> 15
SULLES PRT
+2213 · Artificial Sequence
SERBO Description of Artificial Sequence: Synthetic
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                                      10
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·2211> 15
·:1111 FRT
%213> Artificial Sequence
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                  5
1
                                      10
-12100/ 38
-12111- 15
HG132 PRT
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4220 +
1323 - Description of Artificial Sequence: Synthetic
4(4)(0) + (53)
Let Tyr Ala Val Lys Val Leu Gly Ala Ser Gly Ser Gly Ser Val
                   6.
                                      10
3310 - 33
40011 - 25
-1.11. FF.T
Hill: Artificial Sequence
41.11.0
House Description of Artificial Sequence: Synthetic
+3400 + 39
Val Lys Val Leu Gly Ala Ser Gly Ser Gly Ser Val Ser Ser Ile
                   e,
                                       10
1.110 46
\sim 1.11 \times 15
· III · FF.T
H. 13 · Artificial Sequence
Hall3 · Description of Artificial Sequence: Synthetic
-04 C O. - 4 O.
Lou Gly Ala Ser Gly Ser Gly Ser Val Ser Ser Ile Ala Gln Gly
 <u>.</u> 5
4100-41
0.1111--15
12121 FFT
Hill: Artificial Sequence
+1217(f);+
HARLY Description of Artificial Sequence: Synthetic
+14000 + 41
Ser Gly Ser Gly Ser Val Ser Ser Ile Ala Gln Gly Leu Glu Trp
                 Ε.
                                      10
HU100-42
HI:111- 15
H. LTH FFT
4.1. Artificial Sequence
41.12003
<2200 Description of Artificial Sequence: Synthetic
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\pm 1310 \pm 43
\pm 211 \pm 15
\pm 210 + PRT
H213 - Artificial Sequence
41223
*AMAB · Description of Artificial Sequence: Synthetic
<400 - 43
Ser Ser Ile Ala Gla Gly Leu Glu Trp Ala Gly Asn Asn Gly Met
1.
                                    10
2.11.0 - 44
2001 × 15
HOLD FET
3020 F
<223 Description of Artificial Sequence: Synthetic</p>
<400 - 44
Ala Gln Gly Leu Glu Trp Ala Gly Asn Asn Gly Met His Val Ala
<210x 45
<1.111 + 15
ROID - PFT
*:::: Artificial Sequence
40003 Description of Artificial Sequence: Synthetic
4400 - 45
Leu Glu Trp Ala Gl; Asn Asn Gly Met His Val Ala Asn Leu Ser
                                    10
·1210 · 46
+1211 - 13
William PET
Antificial Sequence
·111101.
*22.3 Description of Artificial Sequence: Synthetic
4400.46
Ala Gl; Asn Asn Gl; Met His Val Ala Asn Leu Ser Leu Gly Ser
                                     10
```

```
·1.11) · 47
1.111 - 15
MAIL - PRT
3213 Artificial Sequence
-:22au-
Hamilian Description of Artificial Sequence: Synthetic
-0400 · 47
Ash Gly Met His Val Ala Ash Leu Ser Leu Gly Ser Pro Ser Pro
                                1:0
             £)
-0010 - 48
0211 - 15
HOLL PET
<!213 - Artificial Sequence</pre>
All. Description of Artificial Sequence: Synthetic
-0400 + 48
His Val Ala Asn Le: Ser Leu Gly Ser Pro Ser Pro Ser Ala Thr
                                      1:)
+1.110 + 49
+1211 - 15
HILL PET
<:213   Artificial Sequence</pre>
+17.30 Description of Artificial Sequence: Synthetic
<4005 49
Asn Leu Ser Leu Gly Ser Pro Ser Pro Ser Ala Thr Leu Glu Gln
                                       10
1
-1.113 - 50
·. 11 · 15
·MILLIGHT PFT
3213 Artificial Sequence
+3223 Description of Artificial Sequence: Synthetic
-14001-50
Deu Gly Ser Pro Ser Pro Ser Ala Thr Leu Glu Gln Ala Val Asn
                                       10
 1
+12100 - 51
\cdot ...111 \cdot 15
...1... PFT
+215 Artificial Sequence
```

```
<2205
<223 - Description of Artificial Sequence: Synthetic
<40: 51
Pro Ser Pro Ser Ala Thr Leu Glu Gln Ala Val Asn Ser Ala Thr
                            10
                Ęj
\pm 0.10 \times 5.2
\pm 0.011 \pm 15
HART CHAT
4213 - Artificial Sequence
31.1.2.a. -
32.23 Description of Artificial Sequence: Synthetic
+(40)0 - 52°
Ser Ala Thr Leu Glu Gln Ala Val Asn Ser Ala Thr Ser Arg Gly
                 5,
                                     1.0
F1310 - 53
30011 - 15
-1212 - FET
+213 - Artificial Sequence
3.200 ×
#225 * Description of Artificial Sequence: Synthetic
\pm 1400 + 53
Leu Glu Gln Ala Val Asn Ser Ala Thr Ser Arg Gly Val Leu Val
 1. 5
<...10 - 54
-1.111 - 15
HOLL FET
-1113 · Artificial Sequence
31.1.0 ×
Halles - Description of Artificial Sequence: Synthetic
Ala Val Asn Ser Ala Thr Ser Arg Gly Val Leu Val Val Ala Ala
                             1:)
+00109 55
-11 15
HUILD FET
-1113 Artificial Sequence
11.
+2223 Description of Artificial Sequence: Synthetic
-:400:- 55
Ser Ala Thr Ser Arg Gly Val Leu Val Val Ala Ala Ser Gly Asn
```

1 5 10 15 <210 → 56 1211 - 15 3212 · PET Hill: Artificial Sequence 40.24 + H223 - Description of Artificial Sequence: Synthetic +14 JU + 56 Ser Arg Gly Val Leu Val Val Ala Ala Ser Gly Asn Ser Gly Ala 1) 40010 × 800  $\pm 0.011 \pm 15$ ·21L · FFT +214 - Artificial Sequence 320 RELATION TESCRIPTION of Artificial Sequence: Synthetic -14 - 1 - 57 Val Lew Val Val Ala Ala Ser Gly Asn Ser Gly Ala Gly Ser Ile 41. 101 - 58 -211 - 15HIZIZ - PRT H213 - Artificial Sequence 3.200A HU23 - Description of Artificial Sequence: Synthetic <400 - 58</p> 77.1 Ala Ala Ser Gly Asn Ser Gly Ala Gly Ser Ile Ser Tyr Pro 1 5 - 3100 - 59 +2110-15 · .:1... FFT - .. 1 M Artificial Sequence + 22m+ +LTX - Lescription of Artificial Sequence: Synthetic - 4(mg - 59) Ser Gly Asn Ser Gly Ala Gly Ser Ile Ser Tyr Pro Ala Arg Tyr 10 -1.21CH 60 ·211: 15

```
-:312 · PET
+2213 · Artificial Sequence
-1231F
HDD: Description of Artificial Sequence: Synthetic
-(40)0 + 60
Ser Gly Ala Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala
\times 210 \times 61
40011 - 15
-1212 + 155T
Sulf - Artificial Sequence
K223 - Pescription of Artificial Sequence: Synthetic
3400 - 61
Sty Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val
                   C
\pm 1210 \times 62
<1211 - 15</pre>
HARL - PRT
+:Cl :- Artificial Sequence
MARKA Description of Artificial Sequence: Synthetic
-4000-52
Sor Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val Gly Ala Thr
1.
F121 00 63
+2110 - 15
+121.1 FT
+27130 Artificial Sequence
HARBY Description of Artificial Sequence: Synthetic
+14000 KE
Ala Arq Tyr Ala Asr Ala Met Ala Val Gly Ala Thr Asp Gln Asn
: 5
                                       10
41. 100 - 64
HIIII 11
HORION FET
H.1 * Artificial Sequence
+1111 (11)+
HILLS: Description of Artificial Sequence: Synthetic
```

<400 54 Ala Asn Ala Met Ala Val Gly Ala Thr Asp Gln Asn Asn Asn Arg 5 10 +2219 + 65-1.211 - 15 4212 - PRT -213 · Artificial Sequence +122014 H224 Description of Artificial Sequence: Synthetic -1400 GE Met Ala Val Gly Ala Thr Asp Gln Ash Ash Ash Arg Ala Ser Phe  $\pm 0.110 \pm 66$  $+211 \times 15$ SIGNOR PET +Cl3 · Artificial Sequence 30.00 B And the Perception of Artificial Sequence: Synthetic 4477 66 Gl; Ala Thr Asp Gln Asn Asn Asn Arg Ala Ser Phe Ser Gln Tyr 5 <210 + 674.111 - 15 4212 / PFT 3213 Artificial Sequence -1220 -4223 - Description of Artificial Sequence: Synthetic +1406 - 67Asp Glr Asn Asn Asn Arg Ala Ser Phe Ser Gln Tyr Gly Ala Gly -1.1101- 68 .211. 15 ·12121 FFT -0.13 Artificial Sequence \*MANNY Lescription of Artificial Sequence: Synthetic Asn Asn Arg Ala Ser Phe Ser Gln Tyr Gly Ala Gly Leu Asp Ile 1 5 10

```
<21 15 69
<211 - 15
<.11. PRT
<::13 · Artificial Sequence</pre>
-1330 ×
1023 - Description of Artificial Sequence: Synthetic
-1400 - 63
Ala Ser Phe Ser Glr Tyr Gly Ala Gly Leu Asp Ile Val Ala Pro
.
.
                         10
1.70
4.11 - 15
\leq 2.12 + \text{ F.T}
HILLS + Artificial Sequence
-0.1.20 ×
*:Lity * Description of Artificial Sequence: Synthetic
+(400 \times 70)
Ser Gln Tyr Gly Ala Gly Leu Asp Ile Val Ala Pro Gly Val Asn
                  Ε'
+1210 - 71
\leq ... 11 + 15
+1212 - FF.T
%213 Artificial Sequence
<2200
KDD3: Description of Artificial Sequence: Synthetic
Gly Ala Gly Leu Asr Ile Val Ala Pro Gly Val Asn Val Gln Ser
                                   10
H210H 72
-13111- 15
HUBBER FRT
+1313 Artificial Sequence
H2238 Description of Artificial Sequence: Synthetic
Leu Asp Ile Val Ala Pro Gly Val Asn Val Gln Ser Thr Tyr Pro
1
                                  10
+12101-73
\cdot: 2111 \cdot 15
+12121- PET
*213> Artificial Sequence
```

<320> <2235 Description of Artificial Sequence: Synthetic</pre>  $44.00 \times 73$ Val Ala Pro Gly Val Asn Val Gln Ser Thr Tyr Pro Gly Ser Thr 10 1210 - 74 ::::::: 15· HOID - FET ALLA: Artificial Sequence 0.033 - Description of Artificial Sequence: Synthetic 4400 · 74 Why Val Ash Val Gln Ser Thr Tyr Pro Gly Ser Thr Tyr Ala Ser Ξ, 10 41.110 - 75  $4211 \pm 15$ HOLL FRT Hulls - Artificial Sequence Walls - Description of Artificial Sequence: Synthetic J.Jul. 75 Val Glr Ser Thr Tyr Pro Gly Ser Thr Tyr Ala Ser Leu Asn Gly 10 4.1100 7€ HIR119-15 HARLES FRIT Hill 3: Artificial Sequence HOLDO Description of Artificial Sequence: Synthetic -14000 76 Thr Tyr Pro Gly Ser Thr Tyr Ala Ser Leu Asn Gly Thr Ser Met 10 -1210b 77 -1212-15 · Til. TEFT All - Artificial Sequence +222x+ Description of Artificial Sequence: Synthetic +14.00 € 77

Gly Ser Thr Tyr Ala Ser Leu Asn Gly Thr Ser Met Ala Thr Pro <210 - 78 < 211 - 15HILLS PRT 4013 Artificial Sequence +:220× 223. Description of Artificial Sequence: Synthetic Tyr Ala Ser Leu Asr. Gly Thr Ser Met Ala Thr Pro His Val Ala 10 <210 - 79 <211 - 15 SU12 - PET <213 · Artificial Sequence <:123. Description of Artificial Sequence: Synthetic</pre> 400 - 79 Leu Ash Gly Thr Ser Met Ala Thr Pro His Val Ala Gly Ala Ala 1つ k210% 80 <2110 15 KOLLAN PRT <213> Artificial Sequence <:223> Description of Artificial Sequence: Synthetic <400> 80 Thr Ser Met Ala Thr Pro His Val Ala Gly Ala Ala Ala Leu Val 1 5 10 <210> 81 <211> 15 <0120 FFT</pre> <2113 Artificial Sequence Clid 30 Description of Artificial Sequence: Synthetic -:400:- 81 Ala Thr Pro His Val Ala Gly Ala Ala Ala Leu Val Lys Gln Lys 1 10

·:110:- 82

```
.:211 - 15
-1212 - PRT
-213 Artificial Sequence
+1.1.1(i) +
Addition Description of Artificial Sequence: Synthetic
+(4.10) + 8.5
31; Val Ala Gly Ala Ala Ala Leu Val Lys Gln Lys Asn Pro Ser
                          1 )
-1110 - 83
+1.111 > 15
· ...ll - FET
-1113 · Artificial Sequence
4000 d
+1223 · Description of Artificial Sequence: Synthetic
~1400 € 83
Gly Ala Ala Ala Leu Val Lys Gln Lys Asn Pro Ser Trp Ser Asn
                 5
...1... 84
+211 - 15
·Cl. · FFT
<21s Artificial Sequence</pre>
K22009
<223 - Description of Artificial Sequence: Synthetic</pre>
<400 € 84
Ala Leu Val Lys Gln Lys Asn Pro Ser Trp Ser Asn Val Gln Ile
                   5
                                       10
<210 > 85
<211> 15
\leq 211 \cdot \text{FFT}
<::13 · Artificial Sequence</pre>
<220%
<223> Description of Artificial Sequence: Synthetic
4400 - 85
Lys Glr. Lys Asn Pro Ser Trp Ser Val Asn Gln Ile Arg Asn His
                                        1()
-1.1101-86
KU110: 15
42125 FFT
%213> Artificial Sequence
-12201-
```

```
322 - Description of Artificial Sequence: Synthetic
44)0 - 66
Asn Pro Ser Trp Ser Asn Val Gln Ile Arg Asn His Leu Lys Asn
                 5
                                     1.0
3310 · 87
0211 \leq 15
-1212 - PRT
8213 · Artificial Sequence
HARRY Description of Artificial Sequence: Synthetic
+(400 + 87)
Trp Ser Asn Val Gln Ile Arg Asn His Leu Lys Asn Thr Ala Thr
                              1:)
H2109-88
0.211 15
HO121 FFT
+2213 · Artificial Sequence
32232 Description of Artificial Sequence: Synthetic
+(4.)0 \times 88
Val Glr. Ile Arg Asn His Leu Lys Asn Thr Ala Thr Ser Leu Gly
                 Ę.
 1
                                     1:0
<210 s 89
<211> 15
<212 * PRT
<213> Artificial Sequence
HAMP: Description of Artificial Sequence: Synthetic
-:400.- 89
Arg Asn His Leu Lys Asn Thr Ala Thr Ser Leu Gly Ser Thr Asn
€. 100- 90
<0.11>15
·M12: PRT
+22130 Artificial Sequence
·10200
+00030 Description of Artificial Sequence: Synthetic
-:400:- 90
Leu Lys Asn Thr Ala Thr Ser Leu Gly Ser Thr Asn Leu Tyr Gly
1 5
                                      10
```

```
R3145 91
\pm 211 + 15
HOID - PET
+213 · Artificial Sequence
-1226
Hall's Description of Artificial Sequence: Synthetic
-0400 - 9i
The Ala Thr Ser Leu Gly Ser Thr Asn Leu Tyr Gly Ser Gly Leu
                 Ę,
HI 10 - 97
-211 - 15
-1212 - FRT
Hilly Artificial Sequence
H223 · Imscription of Artificial Sequence: Synthetic
9400 - 92
Ser Leu Gly Ser Thr Asn Leu Tyr Gly Ser Gly Leu Val Asn Ala
                  ξ,
1
                                       10
11.11.93
\pm 1211 \pm 15
-1.11.1 - FFT
+213 Artificial Sequence
*223 * Description of Artificial Sequence: Synthetic
4400,4 93
Ser Thr Asn Leu Tyr Gly Ser Gly Leu Val Asn Ala Glu Ala Ala
-02100- 94
+00112-15
Shirt PPT
+M130 Artificial Sequence
+2223 Description of Artificial Sequence: Synthetic
-14001-94
Ash Leu Tyr Gly Ser Gly Leu Val Ash Ala Glu Ala Ala Thr Arg
·:: 100 - 95
:00110 15
HIBITO PET
```

```
-1212 Artificial Sequence
1.2.2...
+227 · Description of Artificial Sequence: Synthetic
-(400 - 95
App Ala Glu Leu His lle Phe Arg Val Phe Thr Asn Asn Gln Val
-1.110 - 96
\pm 211 - 15
\pm 2.17 + FET
-21: Artificial Sequence
40220 A
+223 - Description of Artificial Sequence: Synthetic
4400 - 96
Pro Leu Arg Arg Ala Ser Leu Ser Leu Gly Ser Gly Phe Trp His
                                      10
                 3,
F210 - 97
-12111- 15
HOLL FET
+213 · Artificial Sequence
-122014
*MM3> Description of Artificial Sequence: Synthetic
<100 > 97
Arg Ala Ser Leu Ser Leu Gly Ser Gly Phe Trp His Ala Thr Gly
 30100 98
<211: 15
\cdot 1.11.1 \cdot \text{FFT}
+2135 Artificial Sequence
A.M. 30 Description of Artificial Sequence: Synthetic
740017 98
Less Ser Leu Gly Ser Gly Phe Trp His Ala Thr Gly Arg His Ser
+1100+ 99
+13111- 15
· . . . . F.F.T
*1113 Artificial Sequence
+12200
+223 Description of Artificial Sequence: Synthetic
```

```
<400 > 99
Bly Ser Gly Phe Trp His Ala Thr Gly Arg His Ser Ser Arg Arg
         Ē,
                       1) 15
-0.310 \cdot 100
\pm 2.11 \pm 15
HILL: FET
+213 · Artificial Sequence
-1221-
Final Description of Artificial Sequence: Synthetic
+4.50 + 100
Fire Frp His Ala Thr Gly Arg His Ser Ser Arg Arg Leu Leu Arg
                                    1.0
<\!\!210\cdot101
<211 - 15
<0.10 + PRT
H213 - Artificial Sequence
-12.20 -
HARRY Description of Artificial Sequence: Synthetic
-0400 - 101
Ala Thr Gly Arg His Ser Ser Arg Arg Leu Leu Arg Ala Ile Pro
                        10
+1210 × 102
·1211 - 15
SOLDS FFT

<213 · Artificial Sequence</pre>
4000n -
<223. Description of Artificial Sequence: Synthetic</p>
<400.5 102
Arg His Ser Ser Arg Arg Leu Leu Arg Ala Ile Pro Arg Gln Val
           Ē
+U100-103
1.11: 15
· 212> FFT
+213 Artificial Sequence
·00.200>
-3123> Description of Artificial Sequence: Synthetic
-:400> 103
Ser Arg Arg Leu Leu Arg Ala Ile Pro Arg Gln Val Ala Gln Thr
 1
                5
                                    10
```

```
\pm 1.210 + 1.04
\pm 0.211 \pm 15
-1.11.1 PET
+2213 - Artificial Sequence
30.120 F
HARRY Description of Artificial Sequence: Synthetic
+3400 + 104
beu beu Arg Ala Ile Pro Arg Gln Val Ala Gln Thr Leu Gln Ala
                                       10
\pm 0.110 \pm 105
31.111 · 15
11.12.1 - PET
<013 Artificial Sequence</pre>
*DBB - Description of Artificial Sequence: Synthetic
-1400 \cdot 105
Ala lle Pro Arg Glr. Val Ala Gln Thr Leu Gln Ala Asp Val Leu
                                        10
 1
+1.110 + 106
8111 \pm 15
4...1.2 · FFT
<113 > Artificial Sequence
<2230 Description of Artificial Sequence: Synthetic</pre>
Arg Glr. Val Ala Glr. Thr Leu Gln Ala Asp Val Leu Trp Gln Met
                                        10
-11100-107
-1.11 - 15
HERE'S PRT
Hills: Artificial Sequence
*Ill% Description of Artificial Sequence: Synthetic
-:400: 107
Ala Gln Thr Leu Gln Ala Asp Val Leu Trr Gln Met Gly Tyr Thr
                                       10
1
·110 · 108
....11:- 15
·Milia PET
+2213 Artificial Sequence
```

-:330--Halls . Description of Artificial Sequence: Synthetic 44 10 - 103 Leu Gln Ala Asp Val Leu Trp Gln Met Gly Tyr Thr Gly Ala Asn ξ, 10  $\pm 210 \pm 109$ 30011 - 15  $\text{-M.HL} \leftarrow \text{PET}$ H213 - Artificial Sequence 1111 And Description of Artificial Sequence: Synthetic  $\pm (400) \times 100$ Asp Val Leu Trp Glr. Met Gly Tyr Thr Gly Ala Asn Val Arg Val ٥, 10 -0.11 + -110...1: - 15  $\leq 2.12 \times \mathrm{FFT}$ HII - Artificial Sequence 41.10 +223 - Description of Artificial Sequence: Synthetic <4000 - 110Trp Glr. Met Gly Tyr Thr Gly Ala Asn Val Arg Val Ala Val Phe 5 10 K.HOZ 111 ...11 15 8212 - PFT HIMBH Artificial Sequence -1.1. O. ALL So Description of Artificial Sequence: Synthetic Gly Tyr Thr Gly Ala Asn Val Arg Val Ala Val Phe Asp Thr Gly .5 10 -001.00/ 110 -12111- 15 -0100 FFT -0018 - Artificial Sequence  $+0.212\,\Omega_{\rm c}$ +2233 Description of Artificial Sequence: Synthetic <400: 112 Gly Ala Asn Val Arg Val Ala Val Phe Asp Thr Gly Leu Ser Glu

1 5 15 10  $0.0140 \times 113$  $\pm 0.111 \pm 15$ 1.11.1 PRT 4013 · Artificial Sequence +223 · Description of Artificial Sequence: Synthetic  $-400 \cdot 113$ Val Ard Val Ala Val Phe Asp Thr Gly Leu Ser Glu Lys His Pro +210 - 114 $\pm 211 \pm 15$  $\text{Cll.} \cdot \text{PET}$ ...l. Artificial Sequence #223 \* Description of Artificial Sequence: Synthetic <400 + 114Ala Val Phe Asp Thr Gly Leu Ser Glu Lys His Pro His Phe Lys 10 -213 - 115 00.112- 15 - 11.1 FF.T culse Artificial Sequence HAME'S Description of Artificial Sequence: Synthetic <4000 115 Asp Thr Gly Leu Ser Glu Lys His Pro His Phe Lys Asn Val Lys 10 <210 · 116 4.111-15 ·MIDD: PFT +22130 Artificial Sequence 100 4.23 Description of Artificial Sequence: Synthetic

Lou Mer Glu Lys His Pro His Phe Lys Asn Val Lys Glu Arg Thr

5

<::100 - 117</pre>
<:211> 15

434000 116

1

40135 FRT 4.:13 Artificial Sequence -1,72 11-HARD Description of Artificial Sequence: Synthetic 14400-117 Lys His Pro His Phe Lys Asn Val Lys Glu Arg Thr Asn Trp Thr 10 -0.7100 - 119 400111-15 WILLS PET +M130 Artificial Sequence H223 Description of Artificial Sequence: Synthetic +:4000 118 His Phe Lys Asn Val Lys Glu Arg Thr Asn Trp Thr Asn Glu Arg E, 10 <12100 119</pre> +1211.+ 15 +1212.+ FFT 30130 Artificial Sequence +1.33 Description of Artificial Sequence: Synthetic +14000 - 119 Ash Val Lys Glu Arg Thr Ash Trp Thr Ash Glu Arg Thr Leu Asp 1. :12100: 120 ·0.111:- 15 ·:Did: FET HD130 Artificial Sequence +223: Description of Artificial Sequence: Synthetic +14000 - 120 Glu Arg Thr Asn Trp Thr Asn Glu Arg Thr Leu Asp Asp Gly Leu -02100-121 -1.111: 15 -12111 FFT <!213 Artificial Sequence</pre> HDDD Description of Artificial Sequence: Synthetic

```
<40 >> 1..1
Asn Trp Thr Asn Glu Arg Thr Leu Asp Asp Gly Leu Gly His Gly
              5
                                      10
+0.010 + 102
0.011 - 15
\pm 3.11 \pm 100 PF.T
All: Artificial Sequence
-1230-
HUUD: Description of Artificial Sequence: Synthetic
\pm 4.00 \pm 1.72
Ash Glu Arg Thr Leu Asp Asp Gly Leu Gly His Gly Thr Phe Val
                C,
                                      10
<2.10 - 1.13
<011: 15
<212 - PRT
3213 Artificial Sequence
40020 A
<223. Description of Artificial Sequence: Synthetic</p>
4400. 1.3
Thr Leu Asp Asp Gl; Leu Gly His Gly Thr Phe Val Ala Gly Val
                                      10
>12108 1.14
<!211> 15
-1313> Artificial Sequence
+223> Description of Artificial Sequence: Synthetic
+14.00 - 1.14
Asp Gly Leu Gly His Gly Thr Phe Val Ala Gly Val Ile Ala Ser
                                     10
3010× 125
<211> 15
<:10> PRT
+11132 Artificial Sequence
-1.11 01-
H1113> Description of Artificial Sequence: Synthetic
-:400> 125
Gly His Gly Thr Phe Val Ala Gly Val Ile Ala Ser Met Arg Glu
                                      10
```

```
+0.2100 - 126
-0.211 \cdot 15
-121. - PRT
4221 - Artificial Sequence
-112 +-
MARK- Description of Artificial Sequence: Synthetic
<400 - 126</p>
The Phe Val Ala Gly Val Ile Ala Ser Met Arg Glu Cys Gln Gly
                                        10
-1. Do - 1.27
-011 - 15
-0112 - PRT
Allia Artificial Sequence
31.1.19 ×
Half - Description of Artificial Sequence: Synthetic
-0400 - 127
All Gly Val Ile Ala Ser Met Arg Glu Cys Gln Gly Phe Ala Pro
                    5
                           10
\pm 0.10 \pm 118
1.11 1 1 1
40112 + \mathrm{FRT}
-1.13 · Artificial Sequence
· [[...].1 ·
+223 · Description of Artificial Sequence: Synthetic
\pm 1400 \pm 113
ile Ala Ser Met Arg Glu Cys Gln Gly Phe Ala Pro Asp Ala Glu
1.
                    5
Addio: 129
-:211:- 15
-12121- FFT
+213 Artificial Sequence
4.22.A.A
HAMMAN Description of Artificial Sequence: Synthetic
-:400:- 129
Met Arg Glu Cys Gln Gly Phe Ala Pro Asp Ala Glu Leu His Ile
                    5
                                        10
·..100 130
·::11: 15
WHILE PRT
<213> Artificial Sequence
```

<223.1% Hall - Description of Artificial Sequence: Synthetic -1400 - 130 Eys Glr. Gly Phe Ala Pro Asp Ala Glu Leu His Ile Phe Arg Val 10  $<1.10 \times 131$ 111115 CLIL · PET Martificial Sequence 30.120 m Hald - Description of Artificial Sequence: Synthetic -400 - 131 Phe Ala Pro Asp Ala Glu Leu His Ile Phe Arg Val Phe Thr Asn 10  $\pm 1.10 \pm 132$ 1.111 15 -0.01.0 · FFT 30.13 Entificial Sequence 4...23 · Description of Artificial Sequence: Synthetic <400 × 130 Asp Ala Glu Leu His Ile Phe Arg Val Phe Thr Asn Asn Gln Val 10 40109-133 42.111 - 15  $\{1,11,\dots,FF,T$ Artificial Sequence HLDB: Description of Artificial Sequence: Synthetic +14000 - 133 Let His Ile Phe Arg Val Phe Thr Asn Asn Gln Val Ser Tyr Thr 10 +00100 - 134 -0.111 15 HARLES FET · Clib Artificial Sequence \*22730 Description of Artificial Sequence: Synthetic <4000× 134

Phy: Arg Val Phe Thr Asn Asn Gln Val Ser Tyr Thr Ser Trp Phe 5 K.:::0 + 135 -1.111 · 15  $\text{ADIL} \leftarrow \text{PET}$ AMM : Artificial Sequence 40220-4 \*123 - Description of Artificial Sequence: Synthetic -0400 - 135Phe Thr Asn Asn Gln Val Ser Tyr Thr Ser Trp Phe Leu Asp Ala 10 -1210 > 136  $< 311 \times 15$  $\cdot$  ...1... FFT 3.13 Artificial Sequence ×(1,20) × \*\*\*DB\* Description of Artificial Sequence: Synthetic 4400 / 136 Asn Glr. Val Ser Tyr Thr Ser Trp Phe Leu Asp Ala Phe Asn Tyr 10 1 <.:10> 137 <211> 15  $\sim 1.2 > PFT$ <213> Artificial Sequence <...≘0> 3223> Description of Artificial Sequence: Synthetic -400> 137 Ser Tyr Thr Ser Trp Phe Leu Asp Ala Phe Asn Tyr Ala Ile Leu ...10 - 138 02112 15  $\cdot:212\times\text{FFT}$ 400135 Artificial Sequence H0000k +2225 - Description of Artificial Sequence: Synthetic Ser Trp Phe Leu Asp Ala Phe Asn Tyr Ala Ile Leu Lys Lys Ile 5 10

HI210/ 139

```
<311> 15
<210 PET
<dl::-Artificial Sequence</pre>
400 NO 4
H283 - Description of Artificial Sequence: Synthetic
4400 - 139
Leu Asp Ala Phe Ash Tyr Ala Ile Leu Lys Lys Ile Asp Val Leu
\pm 0.00 + 140
H211 + 15
HILL FRI
%213   Artificial Sequence
+1.1.101.4
H223 - Description of Artificial Sequence: Synthetic
\pm 450 \times 140
Phe Ash Tyr Ala Ile Leu Lys Lys Ile Asp Val Leu Ash Leu Ser
                   Ξ,
                        1.0
-1.10 \cdot 141
\pm 211 + 15
HARLAN EET
+213 · Artificial Sequence
41220 ×
HILES Description of Artificial Sequence: Synthetic
<400> 141
Ala Ile Leu Lys Lys Ile Asp Val Leu Asn Leu Ser Ile Gly Gly
                 5
                                      10
<210× 142
\cdot ...11 \cdot ...15
<010> PET
+213 > Artificial Sequence
-1.10 \times
HAMB> Description of Artificial Sequence: Synthetic
+:400> 142
Lys Lys Ile Asp Val Leu Asn Leu Ser Ile Gly Gly Prc Asp Phe
1 5
                        10
H210 - 143
·1.11> 15
HL122 PFT
*1.13> Artificial Sequence
-12101-
```

<0.23> Description of Artificial Sequence: Synthetic 340 F- 143 Amp Wal Leu Asn Leu Ser Ile Gly Gly Pro Asp Phe Met Asp His ε, 1 () -111-1-144 4211 - 15  $\pm 1.11 \pm FRT$ ALLIS Artificial Sequence Halls - Description of Artificial Sequence: Synthetic  $\pm 14.10 \pm 144$ Ash Leu Ser Ile Gly Gly Pro Asp Phe Met Asp His Pro Phe Val 10  $\pm 0.010 \times 145$ 4...11 + 15  $\leq 2.112 < \mathrm{FRT}$ Hills Artificial Sequence 11.10 Fig. : Description of Artificial Sequence: Synthetic  $\pm 1400 \times 145$ The Gly Gly Pro Asp Phe Met Asp His Pro Phe Val Asp Lys Val 5, 1.10 - 146 . . 11 - 11 -111 - PHT 4.13 · Artificial Sequence HILL: Description of Artificial Sequence: Synthetic -(40m - 146 Pro Asp Fhe Met Asp His Pro Phe Val Asp Lys Val Trp Glu Leu +(210) - 147 ·:L11:- 15 · .. I. · FF.T 4.13 Artificial Sequence HILLS Description of Artificial Sequence: Synthetic -14001-147 Met Asp His Pro Phe Val Asp Lys Val Trp Glu Leu Thr Ala Asn 5 10

```
H21TO 143
...11 - 15
1.11 PRT
+211 + Artificial Sequence
KD20 +
HAMA'S Description of Artificial Sequence: Synthetic
Pro Phe Val Asp Lys Val Trp Glu Leu Thr Ala Asn Asn Val Ile
                 5
                                       10
3010 - 149
\pm 1211 + 15
HILL PAT
HART Artificial Sequence
9122 d 9
HALL: Description of Artificial Sequence: Synthetic
-1400 · 149
Asp Lys Val Trp Glu Leu Thr Ala Asn Asn Val Ile Met Val Ser
               c<sub>.)</sub>
\pm 210 \cdot 150
-:::11 - 15
-211 - FFT
HD13 · Artificial Sequence
+223 - Description of Artificial Sequence: Synthetic
- 400 - 150
Trp Glu Leu Thr Ala Asn Asn Val Ile Met Val Ser Ala Ile Gly
                  Ξ,
                                       10
-1.11 UP 15:1
-1.1111- 15
-212: PFT
+213: Artificial Sequence
+2223 Description of Artificial Sequence: Synthetic
-04000 151
Thr Ala Asn Asn Val Ile Met Val Ser Ala Ile Gly Asn Asp Gly
1
                  5
                                       10
\pm 1.100 \cdot 152
42111 15
H212: PRT
```

-0013 Artificial Sequence -1.12.1 -#223 - Description of Artificial Sequence: Synthetic +3400 + 152 Asm Val Ile Met Val Ser Ala Ile Gly Ash Asp Gly Pro Leu Tyr 10 -0.110 - 153 . 111 - 15 HARLEY PRT 1213 - Artificial Sequence -1220 -+323> Description of Artificial Sequence: Synthetic +1400× 153 Met Val Ser Ala Ile Gly Asn Asp Gly Pro Leu Tyr Gly Thr Ile 10 H210 > 154 ·3311 > 15 · Till · PET +213 · Artificial Sequence 4000 c +323 · Description of Artificial Sequence: Synthetic <400 · 154 Ala Ile Gly Asn Asp Gly Pro Leu Tyr Gly Thr Leu Asn Asn Pro 10 H2105 155 +1211 + 15 +1212 + FFT <:213> Artificial Sequence ·1220. +223: Description of Artificial Sequence: Synthetic 74005 155 Ash Asp Gly Fro Lew Tyr Gly Thr Leu Ash Ash Pro Ala Asp Gln -110-156 -.011: 15 -11112 FFT -0.1130 Artificial Sequence -(2200) <223> Pescription of Artificial Sequence: Synthetic

<400 156 Pro Leu Tyr Gly Thr Leu Asn Asn Pro Ala Asp Gln Met Asp Val 5 1.3 <210 - 157 4.111 - 15 HALL FRT 1113 - Artificial Sequence H223 Description of Artificial Sequence: Synthetic -1177 - 157Bly Thr Leu Asn Asr. Pro Ala Asp Gln Met Asp Val Ile Gly Val 1.0  $+0.110 \times 158$  $\leq 211 + 15$ PET : +213 - Artificial Sequence -1.120 -Hall) - Description of Artificial Sequence: Synthetic 73400 - 158 Asn Asr. Pro Ala Asr Gln Met Asp Val Ile Gly Val Gly Gly Ile 1. 10 <210 - 159 <311/ 15 KOIDA PRT <213> Artificial Sequence <2230 Description of Artificial Sequence: Synthetic <400 - 159 Ala Asp Gln Met Asp Val Ile Gly Val Gly Gly Ile Asp Phe Glu 1.0 42100-160 H.:11:- 15 02122 FRT +2135 Artificial Sequence -11.000HEBB: Description of Artificial Sequence: Synthetic 1400: 160 Met Asp Val Ile Gly Val Gly Gly Ile Asp Phe Glu Asp Asn Ile 10

```
<2175 161
<:11 - 15
<.11. PET
<::1: Artificial Sequence</pre>
Additional Description of Artificial Sequence: Synthetic
-0.10 \cdot 161
The Gly Val Gly Gly Ile Asp Phe Glu Asp Asn Ile Ala Arg Phe
1.14 - 172
\pm 1.11 \pm 1^{\circ}
HILL PET
RD13 - Artificial Sequence
HAMB: Description of Artificial Sequence: Synthetic
Gly Gly Ile Asp Phe Glu Asp Asn Ile Ala Arg Phe Ser Ser Arg
                                       1.0
40.10 \pm 163
\pm 211 \pm 15
HOID - FFT
H213 - Artificial Sequence
#173 * Lescription of Artificial Sequence: Synthetic
\pm 3400 \times 163
Asp Phe Glu Asp Asr. Ile Ala Arg Phe Ser Ser Arg Gly Met Thr
                   Ε,
                                        10
-1.10 - 164
40.11.4 15
-1.11L1- EFT
H.13 Artificial Sequence
H223: Description of Artificial Sequence: Synthetic
4400: 164
Asp Asn Ile Ala Arg Phe Ser Ser Arg Gly Met Thr Thr Trp Glu
                                        10
HU10H 165
<!!!!! 110 1!-</pre>
HARLE PRT
+213 Artificial Sequence
```

::22 15 +12.23 - Description of Artificial Sequence: Synthetic +14.00 + 1.65Ala Arg Phe Ser Ser Arg Gly Met Thr Thr Trp Glu Leu Pro Gly 10 +2210 + 166 $\pm 211 \pm 15$ HUID - PRT +313 - Artificial Sequence HERE: Description of Artificial Sequence: Synthetic  $\pm 1400 \pm 166$ Ser Ser Arg Gly Met Thr Thr Trp Glu Leu Pro Gly Gly Tyr Gly Ε. + 310 + 1+7 +2.11 + 14HUID - FRT HU13 - Artificial Sequence 4220% ALLE: Description of Artificial Sequence: Synthetic 414000 167 Gly Met Thr Trp Glu Leu Pro Gly Gly Tyr Gly Arg Met Lys 10  $\pm 2100 \pm 168$ <2111 15 HODIO FFT 3217 Artificial Sequence -(220)-#20.50 Description of Artificial Sequence: Synthetic <14000 163 The Trp Glu Leu Pro Gly Gly Tyr Gly Arg Met Lys Pro Asp Ile 5 10 32100 169 4.11111 15 HARRIE FET HOLD Artificial Sequence ·:[][](:]• HIM No Description of Artificial Sequence: Synthetic 44000-169 Leu Prc Gly Gly Tyr Gly Arg Met Lys Pro Asp Ile Val Thr Tyr

1 5 15

+:210 · 170 +:211 · 15

HL12 · PET +V:13 · Artificial Sequence

· 1.20 ·

<d.23 > Description of Artificial Sequence: Synthetic

+400% 170

Gly Tyr Gly Arg Met Lys Pro Asp Ile Val Thr Tyr Gly Ala Gly L  $_{\rm L}$   $_{\rm L}$ 

+0105 171

<!!!!!> 15

<2125 PRT

3213> Artificial Sequence

41220S

<2233> Description of Artificial Sequence: Synthetic

-1400s 171

Arg Met Lys Pro Asp Ile Val Thr Tyr Gly Ala Gly Val Arg Gly 1  $^{\circ}$  15

<2100-172

-1311> 15

<2125 FRT

<::13> Artificial Sequence

-10 T() >

#3230 Description of Artificial Sequence: Synthetic

Pro Asp Tle Val Thr Tyr Gly Ala Gly Val Arg Gly Ser Gly Val  $1 \ \, 5 \ \,$  10

H2100 173

4.:11:- 15

1.11.11 FFT

Artificial Sequence

-03200-

<dash Description of Artificial Sequence: Synthetic</pre>

-1109F 173

Val Thr Tyr Gly Ala Gly Val Arg Gly Ser Gly Val Lys Gly Gly
1 5 10 15

4...101- 174

:211: 15

<21.1 > PRT -1.11 + Artificial Sequence -1335 A HAMA: Description of Artificial Sequence: Synthetic +(400 + 174)Bly Ala Gly Val Arg Gly Ser Gly Val Lys Gly Gly Cys Arg Ala  $\pm 210 + 175$ 4211 - 15 COLUMN FET HOls: Artificial Sequence 40000 A HARRY Description of Artificial Sequence: Synthetic  $\pm 400 \times 175$ Val Ard Gly Ser Gly Val Lys Gly Gly Cys Arg Ala Leu Ser Gly 10  $\pm 0.140 \pm 176$  $\pm 12.11 \pm 15$ 41. 1.1 · PET +:113 · Artificial Sequence Half Bescription of Artificial Sequence: Synthetic  $\pm 400 \cdot 176$ Ser Gly Val Lys Gly Gly Cys Arg Ala Leu Ser Gly Thr Ser Val  $\pm 0.110 \pm 177$  $\pm 211 \pm 15$ -.1.. FFT +213 - Artificial Sequence +223 - Description of Artificial Sequence: Synthetic -.400. · 177 Lys Gly Gly Cys Arg Ala Leu Ser Gly Thr Ser Val Ala Ser Pro +.110 - 178-1211 - 15 +212: FRT +213 Artificial Sequence <223 Description of Artificial Sequence: Synthetic

<400> 178 Dys Arg Ala Leu Ser Gly Thr Ser Val Ala Ser Pro Val Val Ala Ę, 10  $\pm 0.110 \pm 179$  $\pm 211 \pm 15$ 40012 + PRT +2213 · Artificial Sequence -1220 -HAMB - Description of Artificial Sequence: Synthetic <400 + 179Lor Ger Gly Thr Ser Val Ala Ser Pro Val Val Ala Gly Ala Val 5,  $\pm 210 \times 180$  $\pm 211 \pm 15$  $+0.012 + \mathrm{FET}$ +2213 - Artificial Sequence 31.1. O 3 3... 3. Description of Artificial Sequence: Synthetic <4000 180° Thr Ser Val Ala Ser Pro Val Val Ala Gly Ala Val Thr Leu Leu 1 5 10 -12100× 181 40111-15 HIRITAR PRT +213> Artificial Sequence 422054 HARDAN Description of Artificial Sequence: Synthetic Ala Ser Pro Val Val Ala Gly Ala Val Thr Leu Leu Val Ser Thr 5. 10 + .:10 > 132 - 211≥ 15 · 2123 PRT +213> Artificial Sequence •12.2100• PLIES: Description of Artificial Sequence: Synthetic <14000: 182</pre> Val Val Ala Gly Ala Val Thr Leu Leu Val Ser Thr Val Gln Lys 10 1

```
<1105 153
<.111 - 15
-:_1.: PE.T
<:21 + Artificial Sequence</pre>
41220 6
<!200 Description of Artificial Sequence: Synthetic</pre>
+(40)0 - 163
317 Ala Val Thr Leu Leu Val Ser Thr Val Gln Lys Arg Glu Leu
                                     1 0
         5,
-111 - 114
\pm 211 \pm 15
HOLL PET
Huli Artificial Sequence
-:226 -
HILL: Description of Artificial Sequence: Synthetic
\pm (4000 + 154)
Thr Leu Leu Val Ser Thr Val Gln Lys Arg Glu Leu Val Asn Pro
1. 5.
                         10
4...1: 135
<:.:t: - 15</pre>
HALL FET
Alls: Artificial Sequence
REALTH Description of Artificial Sequence: Synthetic
44 000 185
Mai Ser Thr Val Gln Lys Arg Glu Leu Val Asn Pro Ala Ser Met
                  5
                                      10
42.100 186
41.1111-15
HO LOW FFT
-00130 Artificial Sequence
40.150 Description of Artificial Sequence: Synthetic
-:400: 186
Val Gln Lys Arg Glu Leu Val Asn Pro Ala Ser Met Lys Gln Ala
1
                  5
                                     10
-0.100-187
-00110-15
<2120 PFT
<215 Artificial Sequence
```

```
-:224-
H223 · Description of Artificial Sequence: Synthetic
4400 - 137
Ary Blu Leu Val Ash Pro Ala Ser Met Lys Gln Ala Leu Ile Ala
                                      10
+0.010 + 188
\pm 0.111 \times 15
HILL PRT
<:113   Artificial Sequence</pre>
+223 + Description of Artificial Sequence: Synthetic
-:400 - 188
Mal Asr. Pro Ala Ser Met Lys Gln Ala Leu Ile Ala Ser Ala Arg
                                      10
H210.- 189
4011: 15
HARRY PRI
+2213 · Artificial Sequence
-:223 - Description of Artificial Sequence: Synthetic
R400.1139
Ala Ser Met Lys Glr. Ala Leu Ile Ala Ser Ala Arg Arg Leu Pro
        5.
                                      10
+12101-190
·12111 15
+12121 \cdot \text{FFT}
HM132 Artificial Sequence
Fig. 3. Description of Artificial Sequence: Synthetic
+4000 190
Lys Glr. Ala Leu Ile Ala Ser Ala Arg Arg Leu Pro Gly Val Asn
1 5
                                      10
R0100 191
<2111: 15
· 212: FFT
-0013: Artificial Sequence
+12200:-
+2233 Description of Artificial Sequence: Synthetic
-.400> 191
```

Leu Ile Ala Ser Ala Arg Arg Leu Pro Gly Val Asn Met Phe Glu 5. 10  $\pm 0.19 \pm 192$ -1211 - 15 -1.1.1 PF.T 4213 - Artificial Sequence -1.20-3.23 Description of Artificial Sequence: Synthetic +1400 + 192Ser Ala Arg Arg Le. Pro Gly Val Asn Met Phe Glu Gln Gly His  $\pm 0.210 \times 193$  $\pm 1.011 \pm 15$ SCHILL FET RD13: Artificial Sequence +1.1.100.+ HUDBA Description of Artificial Sequence: Synthetic Ang Leu Pro Gly Val Asn Met Phe Glu Glr. Gly His Gly Lys Leu 10  $\pm 21100 \cdot 194$ +00100 15 HERE FET HILLS: Artificial Sequence <i2200+</p> +3.13> Description of Artificial Sequence: Synthetic  $+14000 \cdot 194$ Gly Val Asn Met Phe Glu Gln Gly His Gly Lys Leu Asp Leu Leu 5 10 -2100-195 -211: 15 -212:- PPT +2130 Artificial Sequence +:223: Description of Artificial Sequence: Synthetic -14000-195 Met The Glu Gln Gly His Gly Lys Leu Asp Leu Leu Arg Ala Tyr 15 10

 $\cdot 1.101 \cdot 196$ 

```
<2111 15
<.110 - FET
<21 > A:tificial Sequence
-1111-
Hally Description of Artificial Sequence: Synthetic
-:400 - 196
Glm Gly His Gly Lys Leu Asp Leu Leu Arg Ala Tyr Glm Ile Leu
10
41.110 × 1 +7
4011 - 15
\pm 0.117 \pm {\tt PET}
Hills Artificial Sequence
41000 A
HALTS - Lescription of Artificial Sequence: Synthetic
\pm 400 \times 197
Gly Lys Leu Asp Leu Leu Arg Ala Tyr Gln Ile Leu Asn Ser Tyr
                                       1.0
-0.10 - 198
\pm 0.11 \pm 15
HIRL PET
+313 - Artificial Sequence
- (1.25) -
\pm 2.3 \pm 0 Description of Artificial Sequence: Synthetic
-1400 + 198
Asp Leu Leu Arg Ala Tyr Gln Ile Leu Asn Ser Tyr Lys Pro Gln
·...10 · 199
-1.111 - 15
...l. FF.T
+1213 - Artificial Sequence
-17.200+
HIDB: Description of Artificial Sequence: Synthetic
199
Arg Ala Tyr Gln Ile Leu Asn Ser Tyr Lys Pro Gln Ala Ser Leu
                                      1.0
-1100-200
+0.111 \cdot 15
-0.120 PF.T
+02130 Artificial Sequence
·(200)
```

<223 Description of Artificial Sequence: Synthetic -(1):1 - 201) In the Leu Ash Ser Tyr Lys Pro Gln Ala Ser Leu Ser Pro Ser 10 42217 + 201  $\leq 2.11 \times 15 c$ 4011 - PRT 331 - Artificial Sequence 12.23 Description of Artificial Sequence: Synthetic -(400 - CC) Ash ter Tyr Lys Pro Gln Ala Ser Leu Ser Pro Ser Tyr Ile Asp 4.111 - . (4.1 HOLL - ERT Artificial Sequence HARBY Rescription of Artificial Sequence: Synthetic 4490 + 100 Lys Pro 3ln Ala Ser Leu Ser Pro Ser Tyr Ile Asp Leu Thr Glu 10 R21A - 203  $\pm 1211 \pm 15$ COLDS PFT XII3 Artificial Sequence HIBB: Description of Artificial Sequence: Synthetic -(400) 103 Ala Ser Leu Ser Pro Ser Tyr Ile Asp Leu Thr Glu Cys Pro Tyr 10 02100-204 -00110- 15 HILLD FET -0.13 Artificial Sequence +0223> Description of Artificial Sequence: Synthetic -:400> 104 Ser Pro Ser Tyr Ile Asp Leu Thr Glu Cys Pro Tyr Met Trp Pro 10

```
H:21 IN 205
\pm 211 \pm 15
HILL FRT
+213 · Artificial Sequence
+12244 +
#333 - Description of Artificial Sequence: Synthetic
- 100 - 115
Tyr Il. Asp Leu Thr Glu Cys Pro Tyr Met Trp Pro Tyr Cys Ser
+210 + 206
+0.11 + 15
HIMILT - FRE
%213 - Artificial Sequence
312200 B
HTTT3 = Tescription of Artificial Sequence: Synthetic
+1400 + 1006
New Thr Glu Cys Pro Tyr Met Trp Pro Tyr Cys Ser Gln Pro Ile
1111g - 1007
+:211 + 1+
+:212 + FFT
<!!!!! Artificial Sequence</pre>
<223 Description of Artificial Sequence: Synthetic</p>
Cys Pro Tyr Met Trp Pro Tyr Cys Ser Gln Pro Ile Tyr Tyr Gly
+10100+1103
+211:- 1053
FILTING PER
+00130 Homo sapiens
-(400) 203
Met Lys Leu Val Asn Ile Trp Leu Leu Leu Val Val Leu Leu Cys
\mathrm{Gl}\gamma Lys \mathrm{Lys} His Leu \mathrm{Gly} Asp \mathrm{Arg} Leu \mathrm{Glu} Lys Lys \mathrm{Ser} Phe \mathrm{Glu} Lys
              20
                                      2.5
Ala Pro Cys Pro Gly Cys Ser His Leu Thr Leu Lys Val Glu Phe Ser
Ser Thr Val Yal Glu Tyr Glu Tyr Ile Val Ala Phe Asn Gly Tyr Phe
```

	50					55					ю́0				
Thr 65	Ala	Lys	Ala	Arg	Asn 70	Ser	Phe	Ile	Ser	Ser 75	Ala	Leu	Lys	Ser	Ser 30
Glu	Vāl	Asp	Asn	Trp 85	Arg	Ile	Ile	Pr∋	Arg 90	Asn	Asn	Pro	Ser	Ser 35	Asp
Tyr	Pro	Ser	Asp 100	Phe	Glu	Val	Ile	Gln 108	Ile	Lys	Glu	Lys	Gln 110	L;/s	Als
Gly	Leu	Leu 115	Thr	Leu	Glu	qzA	His 120	Pro	Asn	Ile	Lys	Arg 125	Val	T:.r	Pro
Gln	Arg 130	Lys	Val.	Phe	Arg	Ser 135	Leu	Lys	Tyr	Ala	Glu 140	Ser	Asp	Pro	Thi
Val 145	Pro	Cys	Asrı	Glu	Thr 150	Arg	Trp	Ser	Gln	Lys 155	Trp	Gln	Ser	Ser	Arq 160
Pro	Leu	Arg	Arg	Ala 165	Ser	Leu	Ser	Deu	Эlу 170	Ser	Gly	₽he	Trp	His 175	Ale
Thr	Gly	Arg	His 180	Ser	Ser	Arg	Arq	Leu 135	Leu	Arg	Ala	Il€	Pro 190	Arg	Glr
Val	Ala	Gln 195	Thr	Leu	Sln	Ala	Asp 200	Val	Leu	Trp	Glin	Met 205	Gly	Tyr	Thr
ЭŢУ	Ala 210	Asrı	Val	Arg	Val	Ala 215	Val	Phe	Asp	Thr	Gly 200	Leu	Ser	Glu	Lys
His 225	Pro	His	₽h÷	Lys	Asn 230	Val	Lys	Glu	Arg	Thr 235	Asn	Trp	Thr	Asn	G15 240
Arg	Thr	Leu	Asp	Asp 245	Gly	Leu	Gly	His	Gly 250	Thr	Phe	Val	Ala	Gly 255	Val
Ile	Ala	Ser	Met 260	Ang	Glu	Суз	Gln	Gly 265		Ala	Pro	Asp	Ala 270	Glu	Leu
His	Ile	Ph⊖ 275	Arg	Väl	Phe	Thr	Asn 280	Asn	Glr.	Val	Ser	Tyr :85	Thr	Ser	Tmp
Phe	Leu 290	Asp	Ala	Phe	Asn	Tyr 245	Ala	Ile	Leu	Lys	Lys 30:0	Ile	Asp	Val	Leu
Asn 305	Leu	Ser	Ile	Gly	Gly 310	Pro	Asp	Phe	Met	Asp 315	His	Pro	Phe	Vāl	Asp 320
Lys	Val	Trp	Glu	Leu 325	Thr	Ala	Asn	Asn	Val 330	Ile	Met	Val	Ser	Ala 335	Ile
Gly	Asn	Asp	Gl; 340	Pro	Leu	Tyr	Gly	Thr 345	Leu	Asn	Asn	Prc	Ala 350	Asp	Gln
Met	Asp	Val	Ile	Gly	Val	Gly	Gly	Ile	Asp	Phe	Glu	Asp	Asn	Ile	Ala

			355					350					3.65			
Ar		Phe 370	Ser	Ser	Arg	Gly	Met 375	Thr	Thr	Trp	31u	Leu 330	Pro	Gly	Gly	Tyr
	Ly <i>P</i> 35	Arg	Met	Lys	Pro	Asp 390	Ile	Val	Thr	Tyr	Gly 395	Ala	Sly	Val	Arạ	Gly 400
Se	er (	Gly	Val	Lys	Gly 405	Gly	Cys	Arg	Ala	Leu 410	Ser	Gly	Thr	Ser	Val 415	Alā
З÷	er E	Pro	Vāl	Val 420	Ala	Gly	Ala	Val	Thr 425	Lea	Leu	Val	Ser	Tnr 430	Val	Gln
٦.)	YS A	Arg	Glu 435	Leu	Val	Asr.	Pro	Ala 440	Ser	Met	Lys	Gln	Ala 445	Leu	Ile	Ala
34		Ala 450	Arg	Arg	Leu	Pro	Gly 455	Väl	Asn	Met	Phe	Glu 460	Gln	Gly	His	Gly
	ys I 55	Leu	Asp	Leu	Leu	Arg 470	Ala	Tyr	Gln	Tle	Leu 475	Asn	Ser	Tyr	Lys	Pro 480
(3)	Lri A	Ala	Ser	Leu	Ser 485	Pro	Ser	Tyr	Ile	Asp 4+)	Leu	Thr	Glu	Cys	Pro 495	Tyr
Me	et T	Trp	Pro	Tyr 500	Cys	Ser	Gln	Pro	Ile 505	Tyr	Tyr	Gly	Gly	Met 510	Pro	Thr
VЗ	al V	√al	Asn 515	Vāl	Thr	Ile	Leu	Asn 520	Gly	Met	Gly	Val	Thr 525	Gly	Arg	Il€
Vā		-	Lys	Pro	Азр	Trp		Pro	Tyr	Leu	Pro		Asn	Gly	Asp.	Asri
Τl		530					535					5.10				
5.4			Vāl	Ala	Phe	Ser 550		Ser	Ser	Val	Leu 555		Pro	Trp	Ser	Gly 560
54	15	Glu				550	Tyr	Val	Thr		555 Lys	Trp			Ser Trp 575	560
54 "Y	15 /r I	Glu Leu	Ala	Ile	Ser 565	550 Ile	Tyr	Val	Thr	Lys 570	555 Lys	Trp	Ala	Ser	Trp	560 Glu
54 Ty G1	45 yr I Ly I	Glu Leu Ile	Ala Ala	Ile Gln 580	Ser 565 Gly	550 Ile His	Tyr Ser Val	Val Met	Thr Ile 585	Lys 570 Thr	555 Lys Val	Trp Ala Ala	Ala Ser	Ser Pro 590	Trp: 575	560 Glu Glu
54 Ty G1	us yr I Ly I hr G	Glu Leu Ile Glu	Ala Ala Ser 595	Ile Gln 580 Lys	Ser 565 Gly Asn	550 Ile His Gly	Tyr Ser Val Ala	Val Met Glu 600	Thr Tie 585 Gln	Thr	555 Lys Val Ser	Trp Ala Ala Thr	Ala Ser Val 605	Ser Pro 590 Lys	Trp 575 Ala	560 Glu Glu Pro
544 TY G1	15 //r I lly I le I 6	Glu Leu Ile Glu Lys	Ala Ala Ser 595 Val	Ile Gln 580 Lys	Ser 565 Gly Asn Ile	550 Ile His Gly Ile	Tyr Ser Val Ala Pro 615	Val Met Glu 600 Thr	Thr Ile 585 Gln Pro	Lys 570 Thr Thr	555 Lys Val Ser Arg	Trp Ala Ala Thr Ser 620	Ala Ser Val 605 Lys	Ser Pro 590 Lys Arg	Trp 575 Ala Leu	560 Glu Glu Pro Leu
544 TY G1 TY 52	yr I Ly I Le I 6	Glu Leu Ile Glu Lys 610	Ala Ala Ser 595 Val	Ile Gln 580 Lys Lys	Ser 565 Gly Asn Ile	550 Ile His Gly Ile Asn 630	Tyr Ser Val Ala Pro 615 Leu	Val Met Glu 600 Thr	Thr Lie 585 Gin Pro	Lys 570 Thr Thr Pro	555 Lys Val Ser Arg Pro 635	Trp Ala Ala Thr Ser 620 Gly	Ala Ser Val 605 Lys	Ser Pro 590 Lys Arg	Trp 575 Ala Leu Val	560 Glu Glu Pro Leu Arg

			660					665					670		
Tyr	Phe	Val 675	GLu	Val	Leu	Gly	Ala 630	Pro	Phe	Thr	Суз	Phe 685	Asp	Ala	Ser
Gln	Tyr 690	Gly	Thr	Leu	Leu	Met 695	Val	Asp	Ser	Glu	Glu 700	Glu	Tyr	Phe	Pro
Glu 705	Glu	Ile	Alâ	Lys	Leu 710	Arg	Arg	Asp	Val	Asp 715	Asn	Gly	Leu	Ser	Leu 720
Val.	Ile	Phe	Ser	Asp 725	Trp	Tyr	Asn	Thr	Ser 730	Val	Met	Ara	Lys	Val 735	Lys
Pne	Tyr	Asp	G14 740	Asn	Thr	Arg	Gln	Trp 745	Trp	Met	Pro	Asp	Thr 750	Gly	Gly
Ala	Asn	Ile 755	Pro	Ala	Leu	Asn	Glu 760	Leu	Leu	Ser	Vāl	Trp 765	Asn	Met	Gly
Phe	Ser 770	Asp	Gly	Leu	Tyr	Glu 775	Gly	Glu	Phe	Thr	Leu 730	Ala	Asn	His	Asp
Met 785	Tyr	Tyr	Ala	Ser	Gly 790	Cys	Ser	Ile	Ala	Lys 795	Pne	Pro	Glu	Asp	Gly 300
Vāl	Val	Ile	Thr	Gln 805	Thr	Phe	Lys	Asp	Gln 810	Gly	Lau	Glu	Val	Leu 815	Lys
Gln	Glu	Th.r	Ala 320	Val	Val	Glu	Asn	Val 825	Pro	Ile	Leu	Gly	Leu 830	Tyr	Gln
fle	Prc	Ala 835	Glu	Gly	Gly	Gly	Arg 340	Ile	Val	Leu	Tyr	Gly 345	Asp	Ser	Asn
Cys	Leu 850	Asp	Asp	Ser	His	Arg 855	Gln	Lyε	Asp	Cys	Phe 860	Trp,	Leu	Leu	Asp
Ala 365	Leu	Leu	Gln	Tyr	Thr 870	Ser	Туr	Gly	Val	Thr 375	Pro	Pro	Ser	Leu	Ser 880
His	Ser	Gly	Asn	Arg 885	Gln	Arg	Pro	Pro	Ser 890	Gly	Ala	Gly	Ser	Val 895	Thr
Pro	Glu	Arg	Met 900	Glu	Gly	Asn	His	Leu 905	His	Arg	Tyr	Ser	Lys 910	Val	Leu
Glu	Ala	His 915	Leu	Gly	Asp	Pro	Lys 920	Pro	Arg	Pro	Leu	Pro 925	Alā	Cys	Pro
Arg	Leu 930	Ser	qıT	Ala	Lys	Pro 935	Gun	Pro	Leu	Asr.	Glu 940	Thr	Ala	Pro	Ser
Asn 945	Leu	Trp	Lys	His	Gln 950	Lys	Leu	Leu	Ser	Ile 955	Asp	Leu	Asp	Lys	Val 960
Val	Leu	Pro	Asn	Phe	Arg	Ser	Asn	Arg	Pro	Gln	Val	Arq	Pro	Leu	Ser

Pro Gly Glu Ser Gly Ala Trp Asp Ile Pro Gly Gly Ile Met Pro Gly 980 985 990

Arg Tyr Asn Gln Glu Val Gly Gln Thr Ilo Pro Val Phe Ala Phe Lea 395 1000 1005

Gly Ala Met Val Val Leu Ala Phe Phe Val Val Gl<br/>n Ile As<br/>n Lys Ala 1010 \$1015\$ 1020

Lys Jer Arg Pro Lys Arg Arg Lys Pro Arg Val Lys Arg Pro Gln Leu 1025 1030 1035 1040

Met Glin Glin Val His Pro Pro Lys Thr Pro Ser Val 1045 1050

 $\pm 210 \pm 209$ 

 $\pm 211 \pm 280$ 

H212 - PRT

+2213 · Homo sapiens

-1400 - 209

Ang Ala Ile Pro Arg Gln Val Ala Glr. Thr Leu Gln Ala Asp Val Leu 1 5 10 15

Trp Gln Met Gly Tyr Thr Gly Ala Ash Val Arg Val Ala Val Phe Asp 20 25 30

Thr Gly Leu Ser Glu Lys His Pro His Pho Lys Asn Val Lys Glu Arg 40 45

Thr Asn Trp Thr Asn Glu Arg Thr Leu Asp Asp Gly Leu Gly His Gly  $50\,$ 

Thr Phe Val Ala Gly Val Ile Ala Ser Met Arg Glu Cys Gln Gly Phe -65 -70 -75 -80

Ala Pro Asp Ala Glu Leu His Ile Phe Arg Val Phe Thr Asr Asr Gln 85 90 95

Val Ser Tyr Thr Ser Trp Phe Leu Asp Ala Phe Asn Tyr Ala Ile Leu 100 105 110

Lys Lys file Asp Val Leu Asn Leu Ser Ile Gly Gly Pro Asp Phe Met 115 120 125

Asp His Fro Phe Val Asp Lys Val Trp Glu Leu Thr Ala Asr Asr Val 130 135 140

Ile Met Val Ser Ala Ile Gly Asn Asp Gly Pro Leu Tyr Gly Thr Leu 145 150 155 160

Asn Asn Fro Ala Asp Gln Met Asp Val Ile Gly Val Gly Gly Ile Asp 165 170 178

Phe Glu Asp Asn Ile Ala Arg Phe Ser Ser Arg Gly Met Thr Thr Trp 135 180 Gla Leu Pro Gly Gly Tyr Gly Arg Met Lys Pro Asp Ile Val Thr Tyr 200 Gly Ala Gly Val Arg Gly Ser Gly Val Lys Gly Gly Cys Arg Ala Leu 210 215 Ser Gly Thr Ser Val Ala Ser Pro Val Val Ala Gly Ala Val Thr Leu Lou Val Ser Thr Val Gln Lys Arg Glu Leu Val Ash Pro Ala Ser Met 250 Lys Gln Ala Leu Ile Ala Ser Ala Arg Arg Leu Pro Gly Val Asn Met 265 Phe Glu Gln Gly His Gly Lys Leu .275 -0.210 · 210 1.11 • 15 +212 + PRT H213 · Artificial Sequence HARBA Description of Artificial Sequence: Synthetic +14000+ 110 Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val 10 ·210> 211 <21112 15 ROTOR PRT <!!!! Artificial Sequence</pre> S223: Description of Artificial Sequence: Synthetic 44000-211 Ala Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val 10 <2105 212 -17119-15 HILL PRT +:113: Artificial Sequence \*11130 Description of Artificial Sequence: Synthetic -:400: 212

```
Gly Ala Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val
                  5
H2179 213
\pm 2.11 \cdot 15
HARLEY PRT
+1113 + Artificial Sequence
-1020-
+2223 - Description of Artificial Sequence: Synthetic
-1400 - 313
Gly Ser Ala Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val
F010 - 014
211 - 15
HU12 - FRT
4013 Artificial Sequence
220
HEMB: Description of Artificial Sequence: Synthetic
Gly Ser Ile Ala Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Val
                 5,
                                     10
<210 · 215
\pm 211 \times 15
S2125 FRT
%2139 Artificial Sequence
×22.20 ×
<2223 > Description of Artificial Sequence: Synthetic
-04000 215
Gly Ser Ile Ser Ala Pro Ala Arg Tyr Ala Asn Ala Met Ala Val
                                   10
...10: ...16
-211> 15
HO122 PRT
1.13 Artificial Sequence
+2233 Description of Artificial Sequence: Synthetic
<400 · 016
Gly Ser Ile Ser Tyr Ala Ala Arg Tyr Ala Asn Ala Met Ala Val
                  5.
                                      10
```

·1210:- 217

```
< 111 • 15
4.113 · PRT
4213 - Artificial Sequence
-1.12a -
4223 - Description of Artificial Sequence: Synthetic
-:400 - :::7
Gly Mer Ile Ser Tyr Pro Ala Ala Tyr Ala Asn Ala Met Ala Val
4.11.3 + .11.8
-1211 - 15
HULL FET
and Artificial Sequence
32200
HAMB: Description of Artificial Sequence: Synthetic
\pm 400 \pm .018
Gly Se: Ile Ser Tyr Pro Ala Arg Ala Ala Asn Ala Met Ala Val
               5
                           10
3216 - 219
\pm 0.011 \pm 15
4212 - FRT
All: Artificial Sequence
3.120 A
-1...3 · Description of Artificial Sequence: Synthetic
4400 - 219
Gly Ber Ile Ser Tyr Pro Ala Arg Tyr Ala Ala Ala Met Ala Val
                    5
                                         1:)
H. 10 - HD0
\pm 1.11\pm 15 c
HILL FRT
3.13 Artificial Sequence
-:1110;-
HILLS Description of Artificial Sequence: Synthetic
H400H 720
\operatorname{Gl}\gamma Cer Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Ala Val
                    5
                                        10
+0.100+121
-17111- 15
\leq 1.11 \leq \mathrm{PFT}
+1713 Partificial Sequence
\pm 1200 \cdot
```

K223 Description of Artificial Sequence: Synthetic <400 - ...1 Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Asn Ala Met Ala Ala 10  $\pm 0.210 \pm 0.22$ 4211 × 15 H212 - PRT <213 - Humicola insplens</pre> +1400 + 120Pro Gly Gly Val Ala Tyr Ser Cys Ala Asp Gln Thr Pro Trp Ala HL10 - 223 -1.11 - 15HILL FIRT +113 + Humicola insplens +400 + 11.3Tys Gly Trp Ala Lys Lys Ala Pro Val Asr Gln Pro Val Phe Ser H210+ 224 -0.11: 276 -02120 PFT 10.130 Humicola insolens -14000-0124 Met Arg Ser Ser Pro Leu Leu Pro Ser Ala Val Val Ala Ala Leu Pro Val Leu Ala Leu Ala Ala Asp Gly Arg Ser Thr Arg Tyr Trp Asp Cys 20 25 30 Cys Lys Pro Ser Cys Gly Trp Ala Lys Lys Ala Pro Val Asn Gln Pro Val Pho Ser Cys Asn Ala Asn Phe Gln Arg Ile Thr Asp Phe Asp Ala 55 Lys Ser Gly Cys Glu Pro Gly Gly Val Ala Tyr Ser Cys Ala Asp Gln Thr Pro Trp Ala Val Asn Asp Asp Phe Ala Leu Gly Phe Ala Ala Thr Cer Ile Ala Gly Ser Asn Glu Ala Gly Trp Cys Cys Ala Cys Tyr Glu 100 105 110

Leu Thr Phe Thr Ser Gly Pro Val Ala Gly Lys Lys Met Val Val Gln

120

Ser Thr Ser Thr Gly Gly Asp Leu Gly Ser Asn His Phe Asp Leu Asn 135 Ile Pro Gly Gly Gly Val Gly Ile Phe Asp Gly Cys Thr Pro Gln Phe 155 150 Gly Gly Leu Pro Gly Gln Arg Tyr Gly Gly Ile Ser Ser Arg Asn Glu 165 170 Cys Asp Arg Phe Pro Asp Ala Leu Lys Pro Gly Cys Tyr Trp Arg Phe Asp Trp Phe Lys Asr. Ala Asp Asn Pro Ser Phe Ser Phe Arg Gln Val 200 Gin Cys Pro Ala Glu Leu Val Ala Arg Thr Gly Cys Arg Arg Asn Asp Asp Gly Asn Phe Pro Ala Val Gln Ile Pro Ser Ser Ser Thr Ser Ser 230 235 Pro Val Ash Gln Pro Thr Ser Thr Ser Thr Thr Ser Thr Ser Thr Thr 245 250 Ser Ser Pro Pro Val Gln Pro Thr Thr Pro Ser Gly Cys Thr Ala Glu 265 Arg Trp Ala Gln .275 <210> 225 <3115 18 <312> PRT <313> Thermomyces lanuginosus <4005 225 Gly Asp Val Thr Gly Phe Leu Ala Leu Asp Asn Thr Asn Lys Leu Ile Val Leu K210% 2.06 <2112 15 40122 FET <:113> Thermomyces lanuginosus  $\Im_{\mathbb{C}} r$  lle Glu Asn Trp Ile Gly Asn Leu Asn Phe Asp Leu Lys Glu 10 -1105 227 +11112-191 H2122 PET

## <213> Thermomyces lanuginosus

<400> 227 Met Ary Ser Ser Leu Val Leu Phe Phe Val Ser Ala Trp Thr Ala Leu Ala Ser Pro Ile Arg Arg Glu Val Ser Gln Asp Lei Phe Asn Gln Phe Ash Leu Phe Ala Gln Tyr Ser Ala Ala Ala Tyr Cys Gly Lys Ash Ash Asp Ala Pro Ala Gly Thr Ash Ile Thr Cys Thr Gly Ash Ala Cys Pro 5(5) Glu Val Glu Lys Ala Asp Ala Inr Phe Leu Tyr Ser Phe Glu Asp Ser Gly Val Gly Asp Val Thr Gly Phe Leu Ala Leu Asp Ash Thr Ash Lys Leu Ile Val Leu Ser Phe Arg Gly Ser Arg Ser Ile Glu Asn Trp Ile 100 Giy Ash Leu Ash Phe Asp Leu Lys Glu Ile Ash Asp Ile Cys Ser Gly 120 Cys Arg Gly His Asp Gly Phe Thr Ser Ser Trp Arg Ser Val Ala Asp 135 Thr Len Arg Gln Lys Val Glu Asp Ala Val Arg Glu His Pro Asp Tyr 150 Arg Val Val Phe Thr Gly His Ser Leu Gly Gly Ala Leu Ala Thr Val 170 165 Ala Gly Ala Asp Leu Arg Gly Ash Gly Tyr Asp Ile Asp Val Phe Ser Tyr Gly Ala Pro Ard Val Gly Ash Ard Ala Phe Ala Glu Phe Leu Thr 200 Val Gln Thr Gly Gly Thr Leu Tyr Arg Ile Thr His Thr Asn Asp Ile 215 210 Val Pro Arg Leu Pro Pro Arg Glu Phe Gly Tyr Ser His Ser Ser Pro Glu Tyr Trp Ile Lys Ser Gly Thr Leu Val Pro Val Thr Arg Ash Asp

Asn Ile Pro Asp Ile Pro Ala His Leu Trp Tyr Phe Gly Leu Ile Gly 280

The Val Lys The Glu Gly The Asp Ala Thr Gly Gly Asn Asn Gln Pro

Thr Cys Leu

<210 - 228

 $4211 \times 12$ 

HULLE PET

HU13 · Streptomyces plicatus

+:4005 .:: 8

0.016 - 0.29

 $\pm .211 \pm .313$ 

-01125 PET

Hills: Streptomyces plicatus

4002 329

Met Phe Thr Pro Val Arg Arg Arg Val Arg Thr Ala Ala Leu Ala Leu 1 5 10 15

Ser Ala Ala Ala Leu Val Leu Gly Ser Thr Ala Ala Ser Gly Ala 20 25 30

User Ala Thr Pro Ser Pro Ala Pro Ala Pro Ala Pro Ala Pro Val Lys  $40 \,$   $45 \,$ 

Gin Gly Pro Thr Ser Val Ala Tyr Val Glu Val Asn Asn Asn Ser Met 50 55 60

Leu Asn Val Gly Lys Tyr Thr Leu Ala Asp Gly Gly Gly Asn Ala Phe 65 70 75 80

Asp Val Ala Val Ile Phe Ala Ala Asn Ile Asn Tyr Asp Thr Gly Thr 85 90 95

Lys Thr Ala Tyr Leu His Phe Asn Glu Asr. Val Gln Arg Val Leu Asp 100 105 110

Asn Ala Val Thr Gln Ile Arg Pro Leu Gln Gln Gln Gly Ile Lys Val 115 129 1.25

Leu Leu Ser Val Leu Gly Asn His Gln Gly Ala Gly Phe Ala Asn Phe 130 135 140

Pro Ser Gln Gln Ala Ala Ser Ala Phe Ala Lys Gln Leu Ser Asp Ala 145 150 155 160

Val Ala Lys Tyr Gly Leu Asp Gly Val Asp Phe Asp Asp Glu Tyr Ala 165 170 175

Glu Tyr Gly Asn Asn Gly Thr Ala Gln Pro Asn Asp Ser Ser Phe Val 180 185 190

His Leu Val Thr Ala Leu Arg Ala Asn Met Pro Asp Lys Ile Ile Ser

195 200 205

Lou Tyr Asn Ile Gly Pro Ala Ala Ser Arg Leu Ser Tyr Gly Gly Val 210 215 220

Asp Val Ser Asp Lys Phe Asp Tyr Ala Trp Asn Pro Tyr Tyr Gly Thr 2005 230 235 236

Trp Glr. Val Pro Gly Ile Ala Leu Pro Lys Ala Glr. Leu Ser Pro Ala 245 250 255

Ala Val Glu Ile Gly Arg Thr Ser Arg Ser Thr Val Ala Asp Leu Ala 260 265 270

Arg Arg Thr Val Asp Glu Gly Tyr Gly Val Tyr Leu Thr Tyr Asn Leu 275 280 285

Asp Gly Gly Asp Arg Thr Ala Asp Val Ser Ala Phe Thr Arg Glu Leu 290 295 300

Tyr Gly Ser Glu Ala Val Arg Thr Pro 305 310

-1210 - 230

-1011 - 15

 $\text{-}0.01.2 \times \text{PET}$ 

-213 - Bacillus amyloliquefaciens

4400 × 330

Gly Thr Val Ala Ala Leu Asn Asn Ser Ile Gly Val Leu Gly Val  $1 \ 5 \ 10 \ 15$ 

-0.10-1.31

41112 15

-0.0120 - FRT

40130 Pacillus amyloliquefaciens

-14000-131

Asn Gly Ile Glu Trp Ala Ile Ala Asn Asn Met Asp Val Ile Asn 1 10 15

-00100-032

02110 15

11.11 FFT

:::130 Bacillus lentus

+14001+ 033

Thr Gly Ser Gly Val Lys Val Ala Val Leu Asp Thr Gly Ile Ser
1 5 10 15

 $\pm 0.100 \cdot 1.33$ 

·::11:: 15

-12121 PFT

-:213 · Bacillus lentus 4400 + 333 Ser Ala Glu Leu Tyr Ala Val Lys Val Leu Gly Ala Ser Gly Ser

1 )

 $\pm 1210 + 234$ <2115 17

HOID PET

<:213> Bacillus lentus

-:400 - ::34

Gly Ser Ile Ser Tyr Pro Ala Arg Tyr Ala Ash Ala Met Ala Val Gly 1:0

Ala

<210 - 235

.1211. 15 Fig.1.1 - PRT

·213 · Badillus lentus

+400 + 235

Gly Ala Gly Leu Asp Ile Val Ala Pro Gly Val Asn Val Gln Ser 10 1 5

<210> 236

<2111 273

s21f > PET

<213 · Artificial Sequence

<21.0 -

<223 Description of Artificial Sequence: Hybrid of Bacillus lentus and Bacillus amyloliquefaciens

-1400 - 136

Ala Gln Ser Val Pro Trp Gly Ile Ser Arg Val Gln Ala Pro Ala Ala

His Asn Arg Gly Leu Thr Gly Ser Gly Val Lys Val Ala Val Leu Asp 20

Thr Gly Ile Ser Thr His Pro Asp Leu Asn Ile Arg Gly Gly Ala Ser 4.0

Pho Val Pro Gly Glu Pro Ser Thr Gln Asp Gly Asn Gly His Gly Thr 50 55

His Val Ala Gly Thr Ile Ala Ala Leu Asn Asn Ser Ile Gly Val Leu

Gly Val Ala Pro Ser Ala Glu Leu Tyr Ala Val Lys Val Leu Gly Ala

Ser Gly Ser Gly Ser Val Ser Ser Ile Ala Gln Gly Leu Glu Trp Ala 100 Gly Asr. Asn Gly Met His Val Ile Asn Met Ser Leu Gly Gly Ser Gly 120 115 Ser Ala Ala Leu Lys Ala Ala Val Asp Lys Ala Val Ala Ser Gly Val 135 Val Val Val Ala Ala Ala Gly Asn Glu Gly Thr Ser Gly Ser Ser Ser 150 Thr Val Gly Tyr Pro Gly Lys Tyr Pro Ser Val Ile Ala Val Gly Ala 165 170 Val Asp Ser Ser Asn Gln Arg Ala Ser Phe Ser Ser Val Gly Pro Glu 185 Leu Asp Val Met Ala Pro Gly Val Ser Ile Gln Ser Thr Leu Pro Gly 195 Asn Lys Tyr Gly Ala Tyr Asr. Gly Thr Ser Met Ala Ser Pro His Val 215 Ala Gly Ala Ala Ala Leu Ile Leu Ser Lys His Pro Asn Trp Thr Asn 230 235 Thr Gln Val Arg Ser Ser Leu Glu Asn Thr Thr Thr Lys Leu Gly Asp 245

Ser Phe Tyr Tyr Gly Lys Gly Leu Ile Asn Val Gln Ala Ala Gln 265